

## *Appendix E*

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**2600-2880 San Tomas Expressway  
and 2400 Condensa Street  
Office Development**

**Transportation Impact Analysis**

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## Executive Summary

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This report presents the results of the traffic impact analysis conducted for the proposed office development located at 2600-2880 San Tomas Expressway and 2400 Condensa Street in Santa Clara, California. The proposed project includes three new office buildings totaling 1,950,000 square feet (s.f.) with three accompanying parking structures and surface parking lots. A reduced project alternative totaling 1,500,000 s.f. also was analyzed. The project site is located on San Tomas Expressway and Condensa Street near the interchange of San Tomas Expressway and Central Expressway. Existing buildings on site totaling 691,214 square feet (509,862 s.f. of office space and 181,352 s.f. of research and development space) are mostly vacant and would be removed.

The project comprises two sites. The east project site, which is located between San Tomas Expressway and San Tomas Aquino Creek, would contain two connected buildings. This site would be served by one existing limited-access driveway on Walsh Avenue, one existing full-access driveway at a signalized intersection on Walsh Avenue and one modified existing right-turn-only driveway on San Tomas Expressway. The west project site, which is located immediately west of San Tomas Aquino Creek on Condensa Street, would contain one office building. The west project site would be served by four full-access driveways on Condensa Street. In addition, the east and west sites are connected by a bridge over the San Tomas Aquino Creek, allowing vehicular and pedestrian access to and from one site through the other. Each project building would be accompanied by a separate parking structure and surface parking lots.

The potential impacts related to the proposed development were evaluated following the standards and methodologies set forth by the City of Santa Clara and the Santa Clara Valley Transportation Authority (VTA). The VTA administers the County Congestion Management Program (CMP). The study included the analysis of AM and PM peak-hour traffic conditions for 55 signalized intersections, 4 unsignalized intersections, and 10 freeway segments.



## Project Trip Generation

Through empirical research, data have been collected that correlate to common land uses their propensity for producing traffic. Thus, for the most common land uses there are standard trip generation rates that can be applied to help predict the future traffic increases that would result from a new development.

Hexagon has prepared project trip estimates for each development option based on trip generation rates obtained from ITE's *Trip Generation*, Seventh Edition, 2003. The traffic that would be generated by reoccupancy of the existing office space was estimated in a similar manner and subtracted from the trips generated by the proposed project to determine the net project trips.

It is estimated that the proposed 1,950,000 square foot office development would generate a total of 13,137 daily vehicle trips with 2,019 trips in the AM peak hour and 2,263 trips in the PM peak hour. After applying the existing trip credits, the project would generate 6,818 daily trips, with 1,095 net trips (976 inbound and 119 outbound) occurring during the AM peak hour and 1,397 net trips (242 inbound and 1,155 outbound) occurring during the PM peak hour.

It is estimated that the 1,500,000 square foot office development proposed under the reduced project alternative would generate a total of 10,734 daily vehicle trips with 1,637 trips in the AM peak hour and 1,759 trips in the PM peak hour. After applying the existing trip credits, the project would generate 4,415 daily trips, with 713 net trips (640 inbound and 73 outbound) occurring during the AM peak hour and 893 net trips (156 inbound and 737 outbound) occurring during the PM peak hour.

## Project Impacts on Intersection Levels of Service

The results of the intersection level of service analysis are summarized in Table ES 1. The level of service calculation sheets are included in Appendix D. Based on the intersection level of service analysis, the proposed project will have a significant impact at the following study intersections:

- De La Cruz Boulevard and Central Expressway
- San Tomas Expressway and El Camino Real
- San Tomas Expressway and Benton Street
- San Tomas Expressway and Homestead Road
- San Tomas Expressway and Saratoga Avenue
- San Tomas Expressway and Stevens Creek Boulevard
- McCarthy Blvd/O'Toole Avenue and Montague Expressway
- Montague Expressway and Trimble Road
- North First Street and Montague Expressway

The unsignalized study intersections, which are not subject to the City's level of service standard, are expected to continue to operate at LOS D or better. Therefore, no improvements are recommended at the unsignalized study intersections.

## Project Impacts on Freeway Segment Levels of Service

The results of the freeway level of service analysis are summarized in Table ES 2. The proposed project would cause a significant impact on the study freeway segments:



**Table ES 1**  
**Intersection Level of Service Summary**

Study Intersection	Peak Hour	Existing			Background			Project			Mitigation			Cumulative			Reduced Project Alternative			Mitigation					
		Avg.	Del.	LOS	Avg.	Del.	LOS	Avg.	Del.	LOS	Incr. In Crit/Del.	Incr. In V/C	Avg.	Del.	LOS	Avg.	Del.	LOS	Incr. In Crit/Del.	Incr. In V/C	Avg.	Del.	LOS		
Santa Clara Intersections																									
1 Great America Parkway & Tasman Drive*	AM	26.0	C	25.6	C	25.6	C	25.6	C	0.0	0.001			27.2	C	1.8	0.055			25.6	C	0.0	0.001		
	PM	29.0	C	29.5	C	29.5	C	29.5	C	0.0	0.001			31.1	C	2.6	0.076			29.5	C	0.0	0.001		
2 Great America Parkway & Mission College Boulevard*	AM	38.4	D	41.4	D	41.4	D	41.4	D	0.0	0.003			43.8	D	2.9	0.097			41.8	D	0.0	0.002		
	PM	52.2	D	78.7	E	78.8	E	78.8	E	0.3	0.001			104.9	F	40.1	0.105			73.8	E	0.1	0.000		
3 Bowers Avenue & US 101 SB Ramps*	AM	23.9	C	25.2	C	25.1	C	25.1	C	0.1	0.003			26.4	C	3.7	0.139			25.2	C	0.0	0.002		
	PM	10.4	B	10.4	B	10.3	B	10.3	B	0.0	0.001			10.3	B	0.1	0.046			10.4	B	0.0	0.000		
4 Bowers Avenue & Augustine Drive	AM	24.1	C	24.7	C	24.8	C	24.8	C	0.0	0.000			24.8	C	0.0	0.000			24.8	C	0.0	0.000		
	PM	32.1	C	51.6	D	51.9	D	51.9	D	0.7	0.002			160.7	F	133.8	0.459			112.5	F	51.8	D	0.5	0.002
5 Bowers Avenue & Scott Boulevard*	AM	27.9	C	30.7	C	30.7	C	30.7	C	0.0	0.001			35.6	D	9.3	0.231			30.7	C	0.0	0.001		
	PM	30.1	C	32.6	C	32.6	C	32.8	C	0.1	0.005			37.4	D	5.4	0.138			32.7	C	0.1	0.003		
6 Bowers Avenue & Central Expressway*	AM	51.5	D	57.7	E	59.2	E	59.2	E	2.4	0.015			83.0	F	44.4	0.149			62.1	E	58.5	E	1.4	0.010
	PM	53.3	D	58.2	E	60.2	E	60.2	E	3.2	0.022			72.5	E	21.0	0.103			60.6	E	59.3	E	2.0	0.014
7 Bowers Avenue & Walsh Avenue/Kifer Road	AM	17.7	B	16.7	B	17.0	B	17.0	B	0.2	0.017			17.2	B	0.6	0.098			16.9	B	0.1	0.011		
	PM	20.3	C	20.3	C	21.2	C	21.2	C	0.3	0.005			21.7	C	1.5	0.078			20.8	C	0.2	0.003		
8 Bowers Avenue & Monroe Street	AM	29.1	C	29.9	C	30.3	C	30.3	C	0.4	0.013			31.1	C	1.3	0.077			30.2	C	0.2	0.008		
	PM	31.8	C	34.4	C	34.8	C	34.8	C	0.6	0.018			40.3	D	6.6	0.127			34.6	C	0.4	0.011		
9 Oakmead Parkway & Central Expressway*	AM	21.4	C	23.8	C	23.9	C	23.9	C	0.1	0.005			27.3	C	3.0	0.040			23.8	C	0.1	0.003		
	PM	28.5	C	29.8	C	30.2	C	30.2	C	-3.1	0.004			33.6	C	2.1	0.084			30.3	C	0.2	0.008		
10 Scott Boulevard & Central Expressway*	AM	48.2	D	48.1	D	48.7	D	48.7	D	-0.1	0.002			52.8	D	5.6	0.098			48.5	D	-0.1	0.001		
	PM	37.7	D	39.4	D	39.5	D	39.5	D	0.0	0.020			43.6	D	6.0	0.079			39.4	D	0.0	0.013		
11 Lafayette Street & Central Expressway*	AM	53.4	D	54.5	D	54.9	D	54.9	D	0.0	0.002			58.3	E	6.9	0.252			54.7	D	0.0	0.001		
	PM	52.5	D	53.8	D	54.3	D	54.3	D	-0.1	0.006			58.3	E	1.4	0.053			54.1	D	0.0	0.004		
12 De La Cruz Boulevard & Central Expressway*	AM	46.2	D	48.1	D	48.5	D	48.5	D	0.5	0.009			52.4	D	5.6	0.079			46.5	D	48.3	D	0.3	0.006
	PM	81.6	F	86.0	F	92.0	F	92.0	F	7.6	0.018			100.6	F	28.8	0.078			63.2	E	83.1	F	3.9	0.011
13 Lick Mill Boulevard & Montague Expressway	AM	25.3	C	24.6	C	24.6	C	24.5	C	-0.2	0.019			24.9	C	0.3	0.060			24.5	C	-0.2	0.012		
	PM	20.5	C	20.0	B	19.9	B	19.9	B	0.0	0.006			20.2	C	0.7	0.030			19.9	B	0.0	0.004		
14 De La Cruz Boulevard/Agnew Road & Montague Expressway*	AM	40.0	D	44.0	D	44.1	D	44.1	D	-0.1	0.018			55.1	E	15.0	0.178			44.1	D	-0.1	0.012		
	PM	38.9	D	40.5	D	40.5	D	40.5	D	0.0	0.005			53.3	D	20.3	0.161			40.5	D	0.0	0.003		
15 Mission College Boulevard & Montague Expressway*	AM	55.5	E	76.0	E	76.3	E	76.3	E	0.1	0.000			110.7	F	83.6	0.213			102.9	F	76.2	E	0.1	0.000
	PM	37.3	D	43.5	D	43.8	D	43.8	D	0.4	0.005			73.0	E	50.1	0.177			69.3	E	43.7	D	0.3	0.003
16 San Tomas Expressway & Scott Boulevard*	AM	32.7	C	36.8	D	36.4	D	36.4	D	0.1	0.005			42.5	D	4.2	0.064			41.5	D	0.0	0.003		
	PM	45.3	D	60.5	E	61.9	E	61.9	E	2.4	0.012			86.6	F	39.0	0.130			61.3	E	61.3	E	1.5	0.007
17 San Tomas Expressway & Walsh Avenue	AM	29.6	C	37.3	D	43.7	D	43.7	D	6.7	0.041			49.0	D	14.9	0.117			41.2	D	4.2	0.026		
	PM	41.2	D	45.9	D	59.2	E	59.2	E	20.5	0.171			64.5	E	29.0	0.225			53.7	D	11.6	0.109		
18 San Tomas Expressway & Monroe Street*	AM	40.4	D	46.9	D	54.9	D	54.9	D	11.2	0.056			68.4	E	29.7	0.115			51.4	D	6.3	0.036		
	PM	40.6	D	43.4	D	45.4	D	45.4	D	3.3	0.050			54.2	D	17.6	0.128			44.5	D	1.8	0.032		
19 San Tomas Expressway & Cabrillo Avenue	AM	23.7	C	25.6	C	27.1	C	27.1	C	2.2	0.042			29.6	C	5.8	0.094			26.6	C	1.4	0.027		
	PM	22.2	C	25.8	C	26.5	C	26.5	C	1.1	0.047			28.3	C	3.6	0.099			26.2	C	0.6	0.030		
20 San Tomas Expressway & El Camino Real*	AM	56.6	E	66.3	E	74.2	E	74.2	E	14.3	0.050			90.8	F	44.6	0.127			66.7	E	71.2	E	8.0	0.033
	PM	55.6	E	77.6	E	84.7	F	84.7	F	10.4	0.042			100.3	F	41.4	0.126			84.0	F	81.9	F	6.4	0.027
21 San Tomas Expressway & Benton Street	AM	55.9	E	87.6	F	103.1	F	103.1	F	21.3	0.048			126.7	F	52.9	0.122			41.3	D	97.6	F	13.8	0.031
	PM	31.8	C	46.6	D	57.4	E	57.4	E	16.6	0.059			79.0	E	49.9	0.141			32.5	C	52.8	D	9.5	0.037
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**Table ES 1 (Continued)**  
**Intersection Level of Service Summary**

Study Intersection	Peak Hour	Existing			Background			Project			Mitigation			Cumulative			Reduced Project Alternative			Mitigation			
		Avg.	Del.	LOS	Avg.	Del.	LOS	Avg.	Del.	LOS	Incr. In	Crit	Del.	Avg.	Del.	LOS	Incr. In	Crit	Del.	Avg.	Del.	LOS	
Santa Clara Intersections (Continued)																							
22 San Tomas Expressway & Homestead Road*	AM	84.0	F	112.0	F	127.9	F	22.4	0.050	54.2	D	149.0	F	52.0	0.115	62.7	E	122.4	F	14.7	0.033	53.0	D
	PM	69.7	E	98.0	F	112.5	F	22.6	0.055	54.6	D	137.5	F	61.1	0.149	64.1	E	107.1	F	14.2	0.036	53.7	D
23 Kely Boulevard & Homestead Road	AM	27.7	C	29.0	C	29.1	C	0.1	0.004			31.3	C	3.9	0.098			29.1	C	0.1	0.003		
	PM	29.8	C	32.5	C	32.7	C	0.4	0.005			34.3	C	2.6	0.058			32.6	C	0.3	0.004		
24 San Tomas Expressway & Forbes Avenue	AM	17.3	B	19.4	B	21.5	C	2.8	0.040			27.0	C	10.0	0.087			20.7	C	1.7	0.026		
	PM	12.5	B	14.5	B	17.6	B	4.6	0.049			25.5	C	16.5	0.103			16.2	B	2.5	0.031		
25 San Tomas Expressway & Pruneridge Avenue	AM	45.7	D	56.0	E	62.8	E	9.4	0.041			74.5	E	26.5	0.096	48.4	D	60.2	E	5.7	0.027		
	PM	42.1	D	49.8	D	53.4	D	5.5	0.040			63.9	E	21.6	0.103	44.1	D	51.9	D	3.2	0.025		
26 San Tomas Expressway & Saratoga Avenue*	AM	57.7	E	72.8	E	85.4	F	19.4	0.052	61.9	E	103.7	F	48.8	0.120	48.5	D	80.7	F	12.2	0.034	59.8	E
	PM	65.7	E	81.9	F	89.7	F	13.8	0.034	74.3	E	106.7	F	42.4	0.068	49.1	D	86.9	F	8.9	0.022	72.2	E
27 San Tomas Expressway & Stevens Creek Boulevard*	AM	50.3	D	53.7	D	54.8	D	1.6	0.022	54.7	D	57.3	E	5.7	0.058	57.2	E	54.4	D	1.1	0.014		
	PM	55.9	F	119.9	F	119.1	F	4.7	0.018	101.1	F	134.7	F	23.6	0.080	109.4	F	117.9	F	2.9	0.011		
28 Saratoga Avenue & Pruneridge Avenue	AM	19.9	B	20.0	C	20.0	C	0.0	0.005			20.1	C	0.2	0.017			20.0	C	0.0	0.003		
	PM	20.7	C	21.0	C	21.1	C	0.1	0.010			21.3	C	0.4	0.024			21.0	C	0.0	0.006		
29 Winchester Boulevard & Pruneridge Avenue/Hedding Street	AM	21.7	C	23.2	C	23.3	C	0.0	0.008			23.4	C	0.1	0.020			24.7	C	2.0	-0.001		
	PM	25.3	C	30.0	C	30.6	C	0.9	0.017			31.3	C	2.0	0.033			30.4	C	0.6	0.011		
30 Winchester Boulevard & Newhall Street	AM	23.6	C	24.2	C	24.2	C	0.0	0.015			24.4	C	0.2	0.023			24.5	C	0.2	0.015		
	PM	18.8	B	20.4	C	20.6	C	0.4	0.018			20.8	C	0.4	0.021			20.6	C	0.2	0.010		
31 Saratoga Avenue & Newhall Street/Scott Boulevard	AM	25.3	C	25.8	C	25.9	C	0.3	0.013			26.2	C	0.6	0.026			25.9	C	0.2	0.008		
	PM	23.8	C	23.6	C	23.6	C	-0.1	0.008			23.8	C	0.2	0.020			23.6	C	0.0	0.005		
32 Scott Boulevard & Homestead Road	AM	21.1	C	21.0	C	20.8	C	-0.2	0.012			21.3	C	0.8	0.032			20.9	C	-0.1	0.008		
	PM	24.4	C	23.4	C	23.2	C	-0.2	0.007			23.9	C	1.0	0.029			23.3	C	-0.1	0.005		
33 Scott Boulevard & Benton Street	AM	18.5	B	18.5	B	18.4	B	-0.1	0.010			18.6	B	0.2	0.023			18.4	B	-0.1	0.006		
	PM	13.8	B	14.0	B	14.1	B	0.0	0.010			14.3	B	0.3	0.023			14.1	B	0.0	0.006		
34 Scott Boulevard & El Camino Real*	AM	33.9	C	34.0	C	34.1	C	-0.1	0.006			34.2	C	-0.1	0.017			34.1	C	0.0	0.004		
	PM	37.5	D	39.1	D	39.2	D	0.2	0.004			40.1	D	1.5	0.036			39.2	D	0.2	0.003		
35 Scott Boulevard & Monroe Street	AM	28.4	C	28.7	C	29.3	C	0.3	0.014			29.3	C	1.7	0.083			29.1	C	0.2	0.010		
	PM	25.0	C	25.7	C	26.2	C	0.8	0.009			26.5	C	1.3	0.037			26.0	C	0.5	0.006		
36 Scott Boulevard & Martin Avenue	AM	17.1	B	17.1	B	17.5	B	0.0	0.010			17.5	B	0.0	0.027			17.3	B	-0.1	0.006		
	PM	21.9	C	21.9	C	22.0	C	0.0	0.006			22.2	C	0.3	0.030			22.0	C	0.0	0.004		
37 Scott Boulevard & Walsh Avenue	AM	22.6	C	22.9	C	25.6	C	15.1	0.070			25.8	C	15.4	0.084			25.6	C	15.1	0.051		
	PM	26.3	C	27.5	C	29.5	C	2.6	0.039			30.0	C	3.3	0.069			28.8	C	1.7	0.025		
38 Lafayette Street & Walsh Avenue	AM	16.1	B	16.2	B	16.5	B	0.1	0.001			16.9	B	0.3	0.013			16.4	B	0.0	0.000		
	PM	20.1	C	20.9	C	22.5	C	2.3	0.035			23.3	C	3.4	0.062			21.9	C	1.4	0.022		
39 Lafayette Street & Martin Avenue	AM	19.1	B	19.3	B	19.8	B	0.6	0.010			20.2	C	1.2	0.034			19.6	B	0.4	0.007		
	PM	19.4	B	19.5	B	19.7	B	0.3	0.017			20.2	C	0.6	0.031			19.6	B	0.2	0.010		
40 Lafayette Street & Reed Street	AM	8.7	A	8.3	A	8.4	A	0.1	0.006			8.7	A	0.5	0.025			8.3	A	0.1	0.004		
	PM	16.4	B	16.6	B	16.8	B	0.2	0.012			17.1	B	0.8	0.034			16.7	B	0.1	0.008		
41 Lafayette Street & El Camino Real*	AM	43.5	D	46.3	D	46.7	D	0.5	0.005			53.0	D	13.8	0.087			46.5	D	0.3	0.003		
	PM	39.1	D	41.5	D	41.7	D	0.2	0.007			44.8	D	6.1	0.084			41.8	D	0.1	0.005		
42 Monroe Street & El Camino Real*	AM	38.7	D	38.6	D	38.7	D	0.3	0.016			39.0	D	0.6	0.026			38.7	D	0.2	0.011		
	PM	35.2	D	36.5	D	37.3	D	1.0	0.021			37.3	D	1.4	0.038			37.0	D	0.6	0.014		

**Table ES 1 (Continued)**  
**Intersection Level of Service Summary**

Study Intersection	Peak Hour	Existing		Background		Project			Mitigation			Cumulative			Reduced Project Alternative			Mitigation			
		Avg.	Del.	Avg.	Del.	Avg.	Del.	Incr. In Cnt/Vic	Avg.	Del.	Avg.	Del.	Incr. In Cnt/Vic	Avg.	Del.	Avg.	Del.	Incr. In Cnt/Vic	Avg.	Del.	
		LOS	LOS	LOS	LOS	LOS	LOS	Crit/Del.	Crit/Vic	LOS	LOS	LOS	LOS	Crit/Del.	Crit/Vic	LOS	LOS	Crit/Del.	Crit/Vic	LOS	Del.
Santa Clara Intersections (Continued)																					
43 De La Cruz Boulevard & Reed Street	AM	10.9	B	11.1	B	11.2	B	0.2	0.010	11.6	B	0.7	0.039	11.2	B	0.1	0.007				
	PM	13.3	B	13.7	B	14.2	B	0.6	0.017	15.1	B	1.7	0.050	14.0	B	0.4	0.010				
44 De La Cruz Boulevard & Martin Avenue	AM	29.4	C	29.2	C	29.3	C	-0.1	0.004	29.4	C	0.2	0.036	29.3	C	0.0	0.003				
	PM	29.3	C	29.2	C	29.0	C	-1.7	-0.002	29.3	C	-1.2	0.028	29.4	C	0.1	0.005				
45 East Signalized Driveway & Walsh Avenue	AM	8.8	A	9.4	A	10.7	B	2.0	0.184	10.8	B	2.1	0.189	10.1	B	1.2	0.120				
	PM	18.2	B	23.0	C	27.3	C	4.9	0.105	27.3	C	4.9	0.112	26.2	C	3.7	0.067				
46 West Side Driveway & Walsh Avenue (unsignalized)	AM	10.7	B	11.7	B	13.5	B	NA	NA	13.6	B	NA	NA	0.6	B	NA	NA				
	PM	9.3	A	9.7	A	10.7	B	NA	NA	10.7	B	NA	NA	0.9	B	0.3	0.000				
47 Northwestern Parkway & Walsh Avenue (unsignalized)	AM	13.7	B	15.2	C	18.4	C	NA	NA	18.8	C	NA	NA	1.6	B	NA	NA				
	PM	14.0	B	15.6	C	21.7	C	NA	NA	22.4	C	NA	NA	3.1	B	0.8	0.000				
48 Northwestern Parkway & Condensa Street (unsignalized)	AM	9.0	A	10.0	B	12.5	B	NA	NA	12.6	B	NA	NA	3.5	A	NA	NA				
	PM	8.9	A	9.4	A	12.8	B	NA	NA	12.8	B	NA	NA	8.1	B	2.1	0.000				
49 San Tomas Expressway & Site Driveway (unsignalized)	AM	9.4	A	9.7	A	10.1	B	NA	NA	10.1	B	NA	NA	0.6	A	NA	NA				
	PM	10.4	B	12.4	B	23.8	C	NA	NA	26.8	D	NA	NA	6.7	C	3.7	0.000				
San Jose Intersections																					
50 McCarthy Boulevard/O'Toole Avenue & Montague Expressway*	AM	39.2	D	44.4	D	44.8	D	0.8	0.011	27.9	C			32.3	C			44.6	D	0.5	0.007
	PM	71.1	E	146.6	F	152.1	F	8.2	0.016	29.4	C			33.2	C			150.1	F	5.3	0.010
51 Montague Expressway & Trimble Road*	AM	30.0	C	32.2	C	32.2	C	0.2	0.004	24.4	C			24.1	C			32.2	C	0.1	0.002
	PM	54.2	D	127.5	F	132.9	F	6.9	0.018	35.4	D			41.9	D			131.0	F	4.4	0.011
52 Montague Expressway & Plumera Drive/River Oaks Parkway	AM	33.5	C	44.5	D	44.2	D	-0.4	0.011	66.5	E	131.5	0.308	43.2	D			44.3	D	-0.3	0.007
	PM	40.6	D	52.5	D	52.2	D	-0.3	0.014	62.3	E	16.9	0.200	56.5	E			54.3	D	-0.2	0.009
53 Zanker Road & Montague Expressway*	AM	48.1	D	65.4	E	66.7	E	2.3	0.012	105.5	F	69.7	0.210	87.2	F			96.2	E	1.4	0.008
	PM	52.6	D	98.2	F	97.9	F	-2.3	0.007	188.7	F	96.6	0.338	144.3	F			66.3	F	-1.0	0.005
54 North First Street & Montague Expressway*	AM	61.4	E	212.8	F	220.5	F	11.0	0.024	172.0	F			217.9	F			217.8	F	7.2	0.016
	PM	87.9	F	273.9	F	283.2	F	3.8	0.009	246.7	F			316.6	F			279.8	F	2.5	0.006
55 Saratoga Avenue & Stevens Creek Boulevard*	AM	34.1	C	34.6	C	34.7	C	0.3	0.014	35.0	D	0.8	0.037	34.6	C			34.6	C	0.2	0.009
	PM	38.2	D	36.7	D	39.9	D	0.3	0.017	40.0	D	1.8	0.069	38.9	D			36.7	D	0.2	0.011
56 Saratoga Avenue & Kelly Boulevard*	AM	40.0	D	37.8	D	37.7	D	0.1	0.001	38.7	D	1.0	0.037	37.7	D			37.7	D	0.0	0.001
	PM	42.1	D	44.3	D	44.7	D	0.8	0.011	46.2	D	3.2	0.051	44.6	D			44.6	D	0.5	0.007
57 Saratoga Avenue & I-280 NB Ramps*	AM	31.2	C	30.6	C	30.4	C	0.0	0.001	30.5	C	0.6	0.017	30.5	C			30.5	C	0.0	0.001
	PM	25.2	C	24.5	C	24.3	C	-0.3	0.009	24.2	C	-0.2	0.032	24.4	C			24.4	C	-0.2	0.005
58 Saratoga Avenue & I-280 SB Ramps*	AM	32.4	C	32.8	C	33.1	C	0.5	0.004	35.6	D	5.1	0.039	33.0	C			33.0	C	0.4	0.003
	PM	44.8	D	45.0	D	45.4	D	1.3	0.005	48.0	D	9.9	0.035	45.3	D			45.3	D	0.9	0.003
59 San Tomas Expressway & Moorpark Avenue*	AM	46.1	D	60.5	E	63.1	E	3.6	0.015	68.8	E	12.5	0.047	54.6	D			62.3	E	2.5	0.010
	PM	41.4	D	44.8	D	45.5	D	-0.1	0.003	49.8	D	2.1	0.048	47.9	D			45.2	D	-0.1	0.002

\* Denotes CMP Intersection

Note: Signalized delay and LOS are average of all intersection movements.

Unsignalized delay and LOS are for the worst controlled lane group.

Bold indicates substandard level of service

indicates a significant impact



Hexagon Transportation Consultants, Inc.  
2600-2880 San Tomas Expressway and 2400 Condensa Street  
Office Development – Santa Clara, CA  
August 8, 2008

**Table ES 2**  
**Freeway Segment Level of Service Summary**

Existing Plus Project Trips										Project Trips										
Freeway	Segment	Direction	Peak Ave. Speed	# of Lanes	Mixed-Flow			HOV Lane			Mixed-Flow			Project Trips						
					Capacity (vph)	Volume/d	Density	LOS	Ave. Speed/d	# of Lanes	Capacity (vph)	Volume/d	Density	LOS	Total Volume	Capacity	%	Volume	Capacity	Impact
US 101	Oakland Rd	NB	AM 7	3	6,900	2,800	133.3	F	32	1	1,800	1,958	61.2	F	58	50	0.7%	8	0.5%	NO
US 101	I-880 to Old Bayshore Hwy	NB	PM 66	3	6,900	4,173	211	S	67	1	1,800	542	8.1	C	15	13	0.2%	2	0.1%	NO
			PM 14	3	6,900	4,220	100	S	67	1	1,800	2,170	46.2	E	70	60	0.9%	10	0.6%	NO
US 101	Old Bayshore Hwy	NB	PM 66	3	6,900	4,565	23.1	C	67	1	1,800	673	10.0	A	18	15	0.2%	3	0.1%	NO
			PM 18	3	6,900	4,770	88.3	F	15	1	1,800	1,442	98.1	F	82	70	1.0%	12	0.7%	YES
US 101	N. First St to SR 87	NB	PM 66	3	6,900	5,558	28.1	D	67	1	1,800	603	12.0	B	21	18	0.3%	3	0.2%	NO
			PM 25	3	6,900	5,560	74.1	F	19	1	1,800	1,634	86.0	F	94	80	1.2%	14	0.8%	YES
US 101	SR 87	NB	AM 67	3	6,900	3,041	15.1	B	67	1	1,800	603	9.0	A	24	21	0.3%	3	0.2%	NO
			AM 14	3	6,900	4,300	102.4	F	21	1	1,800	1,907	80.8	F	117	100	1.6%	17	0.9%	YES
US 101	De La Cruz Blvd to Montague Expwy / San	NB	PM 58	3	6,900	8,635	38.1	D	67	1	1,800	714	11.1	B	28	25	0.4%	4	0.2%	NO
			PM 39	3	6,900	6,270	53.6	E	62	1	1,800	803	12.0	B	82	70	1.0%	12	0.7%	NO
US 101	Montague Expwy / San to Bowers Ave/Great Arnet	NB	PM 45	3	6,900	6,487	46.1	E	67	1	1,800	1,451	22.0	C	10	9	0.1%	1	0.1%	NO
			AM 62	3	6,900	6,518	35.0	D	66	1	1,800	1,451	22.0	C	10	9	0.1%	1	0.1%	NO
US 101	Bowers Ave/Great Arnet to Lawrence Expwy	NB	PM 65	3	6,900	5,743	29.5	D	67	1	1,800	684	10.2	A	97	83	1.2%	14	0.8%	NO
			AM 42	3	6,900	6,602	38.1	D	66	1	1,800	1,652	25.0	C	14	12	0.2%	2	0.1%	NO
US 101	Lawrence Expwy to Fair Oaks Ave	NB	PM 61	3	6,900	6,419	50.9	E	67	1	1,800	890	13.3	B	139	119	1.7%	20	1.1%	NO
			AM 51	3	6,800	6,592	43.1	D	66	1	1,800	1,582	24.0	C	14	12	0.2%	2	0.1%	NO
US 101	Fair Oaks Ave	NB	PM 61	3	6,900	8,709	38.7	D	67	1	1,800	1,030	15.4	B	139	119	1.7%	20	1.1%	NO
			PM 32	3	6,900	5,960	62.1	F	52	1	1,800	2,182	42.0	D	12	10	0.1%	2	0.1%	NO
US 101	Mathilda Ave	NB	PM 65	3	6,900	6,157	31.8	D	67	1	1,800	958	14.3	B	125	107	1.6%	18	1.0%	NO
			AM 45	3	6,800	6,489	48.1	E	55	1	1,800	2,201	40.0	D	10	9	0.1%	1	0.1%	NO
US 101	SR 237	NB	PM 68	3	6,900	5,245	28.6	D	63	1	1,800	2,156	34.2	D	111	95	1.4%	16	0.8%	NO
			PM 17	3	6,900	6,427	56.7	F	66	1	1,800	1,781	27.0	D	8	7	0.1%	1	0.1%	NO
US 101	Morfelt Blvd to SR 85	NB	AM 18	3	6,900	4,755	38.1	F	25	1	1,800	1,831	73.3	F	6	5	0.1%	1	0.0%	NO
			PM 24	3	6,900	5,395	74.9	F	66	1	1,800	1,681	28.2	D	78	65	0.9%	11	0.6%	NO
US 101	SR 65 to Morfelt Blvd	SB	AM 54	3	6,900	6,694	41.3	D	67	1	1,800	1,219	18.2	C	63	54	0.8%	9	0.5%	NO
			PM 57	3	6,900	6,684	38.1	D	65	1	1,800	1,852	30.0	D	16	14	0.2%	2	0.1%	NO
US 101	Morfelt Blvd to SR 237	SB	AM 57	3	6,900	6,734	38.4	D	66	1	1,800	1,661	25.2	C	75	64	0.8%	11	0.6%	NO
			PM 63	3	6,900	6,446	34.1	D	66	1	1,800	1,323	20.0	C	19	16	0.2%	3	0.2%	NO
US 101	SR 237 to Mathilda Ave	SB	AM 68	3	6,900	5,030	25.4	C	66	1	1,800	1,333	20.2	C	93	80	1.2%	13	0.7%	NO
			PM 68	3	6,900	4,970	25.1	C	66	1	1,800	1,453	22.0	C	23	20	0.3%	3	0.2%	NO
US 101	Mathilda Ave to Fair Oaks Ave	SB	AM 65	3	6,900	8,140	31.5	D	66	1	1,800	1,465	22.2	C	105	90	1.3%	15	0.8%	NO
			PM 51	3	6,900	6,602	43.2	D	67	1	1,800	1,074	16.0	B	26	22	0.3%	4	0.2%	NO
US 101	Fair Oaks Ave to Lawrence Expwy	SB	AM 62	3	6,900	6,610	35.5	D	67	1	1,800	1,227	18.3	C	117	100	1.5%	17	0.9%	NO
			PM 20	3	6,900	4,945	82.4	F	66	1	1,800	1,764	27.0	D	29	25	0.4%	4	0.2%	NO
US 101	Lawrence Expwy to Bowers Ave/Great Arnet	SB	AM 65	3	6,900	6,150	31.5	D	67	1	1,800	1,067	16.2	B	117	100	1.5%	17	0.9%	NO
			PM 9	3	6,900	3,315	122.8	F	39	1	1,800	2,074	53.2	E	29	25	0.4%	4	0.2%	NO
US 101	Bowers Ave/Great Arnet to Montague Expwy/San T	SB	AM 66	3	6,900	4,620	23.3	C	67	1	1,800	882	13.2	B	82	70	1.0%	12	0.7%	NO
			PM 10	3	6,900	3,497	11.6	F	32	1	1,800	1,953	61.0	F	20	17	0.2%	3	0.2%	NO
US 101	Montague Expwy/San T to De La Cruz Blvd	SB	AM 66	3	6,900	5,359	27	C	67	1	1,800	741	11.1	B	10	9	0.1%	1	0.1%	NO
			PM 13	3	6,900	4,063	104.2	F	50	1	1,800	2,214	44.3	D	87	83	1.2%	14	0.8%	YES
US 101	De La Cruz Blvd to SR 87	SB	AM 66	3	6,900	4,372	22.1	C	67	1	1,800	602	9.0	A	14	12	0.2%	2	0.1%	YES
			PM 28	3	6,900	5,749	68.4	F	64	1	1,800	2,130	33.3	D	139	119	1.7%	20	1.1%	YES
US 101	SR 87 to N. First St	SB	AM 67	3	6,900	2,620	14.0	B	67	1	1,800	212	4.1	A	12	10	0.1%	2	0.1%	NO
			PM 23	3	6,900	5,355	77.3	F	52	1	1,800	2,146	42.2	D	111	95	1.4%	16	0.8%	YES
US 101	N. First St to Old Bayshore Hwy	SB	AM 67	3	6,900	3,429	17.1	B	67	1	1,800	671	10.0	A	10	9	0.1%	1	0.1%	NO
			PM 11	3	6,900	3,713	111.2	F	29	1	1,800	1,904	65.7	F	97	83	1.2%	14	0.8%	YES
US 101	Old Bayshore Hwy to I-880	SB	AM 67	3	6,900	3,227	16.1	B	67	1	1,800	271	4.0	A	8	7	0.1%	1	0.1%	NO
			PM 11	3	6,900	3,771	114.3	F	33	1	1,800	1,992	69.4	F	83	71	1.0%	12	0.7%	YES
US 101	I-880 to Oakland Rd	SB	AM 66	3	6,900	3,765	19.0	C	67	1	1,800	341	5.1	A	6	5	0.1%	1	0.0%	NO
			PM 13	3	6,900	4,159	108	F	36	1	1,800	2,030	56.4	E	69	59	0.9%	10	0.6%	NO
SR 87	Skyport Dr to US 101	NB	AM 6	2	4,400	1,760	146.6	F	67	1	1,800	943	14.1	B	23	20	0.4%	3	0.2%	NO
			PM 67	2	4,400	2,285	17.1	B	67	1	1,800	541	8.1	A	6	5	0.1%	1	0.0%	NO
SR 87	US 101 to Skyport Dr	SB	AM 66	2	4,400	3,433	26.0	D	67	1	1,800	130	1.9	A	3	3	0.1%	0	0.0%	NO
			PM 59	2	4,400	4,394	37.2	D	67	1	1,800	804	12.0	B	28	24	0.5%	4	0.2%	NO

/a/ Source: Santa Clara Valley Transportation Authority Congestion Management Program Monitoring Study, 2006.

US 101, northbound between Old Bayshore Highway and North First Street  
US 101, northbound between North First Street and SR 87  
US 101, northbound between SR 87 and De La Cruz Boulevard  
US 101, southbound between Montague Expressway and De La Cruz Boulevard  
US 101, southbound between De La Cruz Boulevard and SR 87  
US 101, southbound between SR 87 and North First Street  
US 101, southbound between North First Street and Old Bayshore Highway  
US 101, southbound between Old Bayshore Highway and I-880

## **Recommended Project Mitigation Measures**

The following roadway improvements, if implemented, would satisfactorily mitigate significant project impacts.

***De La Cruz Boulevard and Central Expressway*** - Convert the existing HOV lane on eastbound Central Expressway to a mixed-flow lane.

***San Tomas Expressway and El Camino Real*** – Add a second left-turn lane to the east and west approaches.

***San Tomas Expressway and Benton Street*** – Add a fourth through lane to the south approach.

***San Tomas Expressway and Homestead Road*** – Add a fourth through lane to the north and south approaches.

***San Tomas Expressway and Saratoga Avenue*** - Add a second eastbound left-turn lane.

***San Tomas Expressway and Stevens Creek Boulevard*** - Add a fourth through lane on the north approach.

***McCarthy Boulevard/O'Toole Avenue and Montague Expressway*** – Construct a “square-loop” interchange to replace the at-grade intersection.

***Montague Expressway and Trimble Road*** – Construct the Trimble flyover replacing the triple left-turn lanes from westbound Montague Expressway to southbound Trimble Road.

***North First Street and Montague Expressway*** – Add a fourth westbound through lane.

The City of Santa Clara has a policy to collect a fee of \$1 per square foot of the project size for projects that have a significant impact on County expressways. The impact fee for this project would be given to Santa Clara County. The County may or may not elect to use these funds for the above-listed improvements.

Mitigation of significant project impacts on freeway segments would require roadway widening to construct additional through lanes, thereby increasing freeway capacity. Since it is not feasible for an individual development project to bear responsibility for implementing such extensive transportation system improvements due to constraints in acquisition and cost of right-of-way, and no comprehensive





project to add through lanes has been developed by Caltrans or VTA for individual projects to contribute to, the significant impacts on the directional freeway segments identified above must be considered significant and unavoidable.

## **Other Transportation Issues**

### ***Intersection Operations Analysis***

The operations analysis is based on vehicle queuing for high demand turning movements at intersections. Intersections found to have a deficiency in the available turn pocket storage are described below.

#### **East Signalized Project Driveway and Walsh Avenue**

The existing 95<sup>th</sup> percentile queue (100 feet per lane) exceeds the existing left-turn storage capacity of the southbound approach (60 feet per lane) in the PM peak hour. The project site plan shows that the driveway throat length would be extended, which would increase the left-turn storage to 215 feet per lane. Yet, the increased storage would not be sufficient to accommodate the 95<sup>th</sup> percentile queue, which would reach 325 feet per lane with the project. During the peak periods within the PM peak hour, the queue frequently would extend past the end of the driveway impeding circulation on internal drive aisles. The storage deficiency on site is not expected to affect traffic operations on the public street network.

#### **San Tomas Expressway and Walsh Avenue**

The existing left-turn storage capacity on northbound San Tomas Expressway at Walsh Avenue (250 feet per lane) is not adequate to accommodate the existing 95<sup>th</sup> percentile queue (275 feet per lane) during the AM peak hour. The additional traffic generated under the proposed project would cause the 95<sup>th</sup> percentile queue length to increase to 650 feet per lane. There are two left-turn lanes and a raised median at this location. Lengthening the northbound left-turn pocket to accommodate the projected queue length would require widening the roadway. The existing right-of-way is adequate for this improvement.

Eastbound Walsh Avenue currently has only a single 135-foot left-turn lane at San Tomas Expressway. Under existing conditions, the eastbound left-turn pocket is inadequate to accommodate the 95<sup>th</sup> percentile queue of 500 feet per lane during the PM peak hour. The additional traffic generated under the proposed project would cause the 95<sup>th</sup> percentile queue length to increase to 875 feet per lane. The addition of a second eastbound left-turn lane is recommended to mitigate the significant impact on the intersection's level of service. Furthermore, it would help to alleviate the existing left-turn storage deficiency. Due to the proximity of this intersection with the signalized project driveway on Walsh Avenue, it is recommended that the dual left-turn lanes on eastbound Walsh Avenue at San Tomas Expressway be built side-by-side with the single westbound left-turn lane at the adjacent intersection. Although the side-by-side configuration would require more right-of-way than the current end-to-end configuration, it would maximize the queue storage area resulting in as much as 350 feet of queue storage per lane. Even so, the side-by-side dual left-turn lanes would fall short of the estimated 95<sup>th</sup> percentile queue of 475 feet per lane. It is recommended that the closely spaced intersections operate under close signal coordination to manage queues.





## ***Transit, Pedestrian and Bicycle Analysis***

It is concluded that the additional transit riders that may be generated by the proposed project could be accommodated by the existing transit service. Improvements are recommended to facilitate pedestrian travel to and from the nearby bus stops.

There are bus stops on San Tomas Expressway immediately adjacent to and across the street from the project site. Sidewalk segments connect the bus stops to the San Tomas/Walsh intersection. It is recommended that the sidewalk on the west side of San Tomas Expressway be extended northward along the length of the project frontage to Central Expressway. From there, the sidewalk should continue along the northern edge of the property adjacent to Central Expressway leading to a crosswalk across an internal roadway in order to connect to the existing sidewalk on the south side of the Condensa Street Bridge. The recommended sidewalks along the perimeter of the site would provide a direct route for people walking to and from the bus stops on San Tomas and Central Expressways.

There is also a bus stop on the north side of Walsh Avenue approximately 400 feet east of San Tomas Expressway. It is suggested that a crosswalk be added to the north leg of the San Tomas/Walsh intersection to increase the convenience of pedestrians traveling between the project site and the bus stops on the east side of San Tomas Expressway. In addition, a bus stop may be constructed along the project frontage on Walsh Avenue, which would further improve the convenience for transit riders and diminish the need to add a crosswalk at the San Tomas/Walsh intersection.

An inactive bus stop is located on Central Expressway approximately 200 feet east of Northwestern Parkway. A segment of sidewalk extends from this bus stop along Central Expressway and Northwestern Parkway to Condensa Street. While a sidewalk currently exists along the project frontage on the south side of Condensa Street, it ends at the western property line. In order to provide a safe and convenient pedestrian route between the project site and the bus stop on Central Expressway, it is recommended that the project extend the sidewalk westward along the south side of Condensa Street to Northwestern Parkway (a distance of approximately 250 feet). Furthermore, the sidewalk along Condensa Street should be extended eastward by roughly 100 feet in order to connect to the trail on the west side of the San Tomas Aquino Creek and to the existing sidewalk on the south side of the Condensa Street bridge.

The project proposes to construct a new pedestrian bridge over the San Tomas Aquino Creek to facilitate travel between the proposed office buildings on the east and west project sites. Aside from this feature, the preliminary site plan available at this date does not show pedestrian connections within the project sites. Pedestrian pathways should be included within the project sites to connect the buildings' main points of entry/exit with existing and recommended sidewalks and bus stops along adjacent roadways.

It is expected that bicycle trips would comprise no more than one percent of the total project-generated trips. Thus, the project could generate 14 new bicycle trips. The existing bicycle facilities would be adequate to serve the anticipated demand.

## **Site Access, On-Site Circulation and Parking**

### ***Site Access***

The project comprises two sites. The east project site, which is located between San Tomas Expressway and San Tomas Aquino Creek, would be served by three driveways. One driveway would be located on



Walsh Avenue just east of San Tomas Aquino Creek. Like the existing driveway at the same location, this driveway would allow both left and right turns into the site but would be limited to only right turns out of the site. The east site also would maintain the current full-access signalized driveway on Walsh Avenue. As shown on the site plan, the driveway would include three lanes outbound. The level of service calculation at this intersection assumes that the driveway will be striped to include an exclusive left-turn lane, a shared through/left-turn lane, and a right-turn lane. Although not necessary to achieve an acceptable level of service, it is recommended that the right-turn lane extend as far as the other lanes in order to minimize the proportion of time that it is blocked by queues in the adjacent lane. The project also proposes to utilize a right-turn-only driveway on San Tomas Expressway, which would be located approximately 50 feet south of an existing right-turn-only driveway. The slight shift in the driveway location would not have an appreciable effect on traffic operations.

The west project site, which is located immediately west of San Tomas Aquino Creek on Condensa Street, would be served by four full-access driveways on Condensa Street. In addition, the east and west sites are connected by a bridge over the San Tomas Aquino Creek, allowing vehicular and pedestrian access to and from one site through the other.

Each of the proposed driveway locations offers adequate sight distance in both directions. The project driveways should be free and clear of any obstructions to optimize sight distance. Any landscaping and signage near the driveways should be located in such a way to ensure an unobstructed view for drivers entering and exiting the site.

To determine if the site driveways are adequate for service vehicle access, the WB-40 and SU-30 AASHTO design vehicle turning specifications were checked against the driveway and roadway geometrics associated with the site. The site plan shows that the inbound lane at the signalized project driveway on Walsh Avenue would be only 12 feet wide with a raised curb and median on either side. The lane width should be increased to 15 feet to facilitate inbound truck movements. Because there are multiple outbound lanes at this driveway, trucks could negotiate outbound turn movements successfully by using more than one lane. Likewise, the width of both the inbound and outbound lanes at the western project driveway on Condensa Street also should be increased to 15 feet to accommodate truck movements.

### ***On-Site Circulation***

The drive aisles are shown to have a typical width of 25 feet, which would allow for adequate circulation and maneuvering for 90-degree parking stalls. The width of internal roadways, which varies from 24 to 30 feet, would be sufficient for two-way circulation. According to the site plan, the internal roadway network would not contain any dead-end drive aisles. The design and layout of the on-site roadways is generally adequate to accommodate circulation of passenger vehicles and emergency vehicles. Clear sight distance triangles should be provided where internal roadways are curved and at internal roadway junctions to optimize sight distance. Any landscaping and signage should be located in such a way to ensure an unobstructed view for drivers exiting the site. Provisions for truck loading are included at each of the proposed office buildings. The internal roadways are adequate to allow trucks to circulate to and from the loading areas within the site.

Each of the three proposed parking garages is shown to have two access points. Each garage access would have a single lane in each direction, which would be sufficient if vehicles are allowed to enter or exit the garage unimpeded. However, additional lanes and queue storage would be needed if the garage access is to be gated or controlled by some other means.



Overall, the site plan exhibits adequate site access and on-site circulation for motor vehicles. The City ultimately will determine the adequacy of the proposed driveways and internal street system design.

### **Parking**

As shown on Figure 2, the project would provide 7,050 parking stalls on site. The City of Santa Clara's zoning codes require 1 space per 300 s.f. of gross floor area for office space. The project would consist of 1,950,000 s.f. of office space. The total number of spaces required according to the City's code would be 6,500 spaces. Thus, the project would exceed the City's parking requirements.

### **Cumulative Impacts on Intersection Levels of Service**

The following study intersections would have a significant cumulative impact:

Great America Parkway and Mission College Boulevard  
Bowers Avenue and Augustine Drive  
Bowers Avenue and Central Expressway  
De La Cruz Boulevard and Central Expressway  
Mission College Boulevard and Montague Expressway  
San Tomas Expressway and Scott Boulevard  
San Tomas Expressway and El Camino Real  
San Tomas Expressway and Benton Street  
San Tomas Expressway and Homestead Road  
San Tomas Expressway and Saratoga Avenue  
San Tomas Expressway and Stevens Creek Boulevard  
McCarthy Blvd/O'Toole Avenue and Montague Expressway  
Montague Expressway and Trimble Road  
Montague Expressway and Plumeria Drive/River Oaks Parkway  
Zanker Road and Montague Expressway  
North First Street and Montague Expressway  
San Tomas Expressway and Moorpark Avenue

The unsignalized intersections are expected to continue to operate with low to moderate levels of delay equivalent to LOS D or better. Therefore, no improvements are required.

### **Cumulative Mitigation Measures**

The following measures would satisfactorily mitigate many of the significant cumulative impacts on intersection levels of service described above:

***Great America Parkway and Mission College Boulevard*** – Add a third westbound left-turn lane.

***Bowers Avenue and Augustine Drive*** – Add a second southbound left-turn lane and convert the eastbound through lane and right-turn lane into a second left turn lane and a shared through-right-turn lane (partial mitigation).



***Bowers Avenue and Central Expressway*** – Convert the existing HOV lanes eastbound and westbound on Central Expressway to mixed-flow lanes.

***De La Cruz Boulevard and Central Expressway*** - Convert the existing HOV lane on eastbound Central Expressway to a mixed-flow lane.

***Mission College Boulevard/Thomas Road and Montague Expressway*** - Convert the innermost eastbound through lane to a third eastbound left-turn lane (partial mitigation) or construct a full interchange to replace the at-grade intersection (full mitigation).

***San Tomas Expressway and Scott Boulevard*** – Add a second right-turn lane on the east approach.

***San Tomas Expressway and El Camino Real*** – Add a second left-turn lane to the east and west approaches (partial mitigation) or construct a full interchange to replace the at-grade intersection (full mitigation).

***San Tomas Expressway and Benton Street*** – Add a fourth through lane to the north and south approaches.

***San Tomas Expressway and Homestead Road*** – Add a fourth through lane to the north and south approaches.

***San Tomas Expressway and Saratoga Avenue*** - Add a second eastbound left-turn lane and a fourth southbound through lane.

***San Tomas Expressway and Stevens Creek Boulevard*** - Add a fourth through lane on the north approach.

***McCarthy Boulevard/O'Toole Avenue and Montague Expressway*** – Construct a “square-loop” interchange to replace the at-grade intersection.

***Montague Expressway and Trimble Road*** – Construct the Trimble flyover replacing the triple left-turn lanes from westbound Montague Expressway to southbound Trimble Road.

***Plumeria Drive/River Oaks Parkway and Montague Expressway*** – No feasible improvements (significant unavoidable cumulative impact).

***Zanker Road and Montague Expressway*** – Add second northbound and southbound left turn lanes.

***North First Street and Montague Expressway*** – Add a fourth westbound through lane.

***San Tomas Expressway and Moorpark Avenue*** – Add a fourth through lane on the south approach.



## Reduced Project Impacts and Mitigations

While the proposed project was found to cause a significant impact on 10 intersections, the reduced project alternative would cause a significant impact at only the following 7 intersections:

- San Tomas Expressway and El Camino Real (CMP)
- San Tomas Expressway and Benton Street (Santa Clara)
- San Tomas Expressway and Homestead Road (CMP)
- San Tomas Expressway and Saratoga Avenue (CMP)
- McCarthy Boulevard/O'Toole Avenue and Montague Expressway (San Jose and CMP)
- Montague Expressway and Trimble Road (San Jose and CMP)
- North First Street and Montague Expressway (San Jose and CMP)

The improvements necessary to mitigate the significant impacts at these intersections under the reduced project alternative are the same as those previously identified in Chapter 4.

The following significant intersection impacts identified under project conditions would be avoided under the reduced project alternative:

- De La Cruz Boulevard and Central Expressway (CMP)
- San Tomas Expressway and Stevens Creek Boulevard (CMP)

The results of the CMP freeway analysis show that the reduced project alternative would cause significant increases in traffic volumes (more than one percent of freeway capacity) on the following two study freeway segments:

- US 101, northbound between SR 87 and De La Cruz Boulevard (AM Peak Hour)
- US 101, southbound between De La Cruz Boulevard and SR 87 (PM Peak Hour)

Because it is not feasible for an individual development project to bear the responsibility of widening the freeway, and neither Caltrans nor VTA have developed any freeway widening project towards which the project may contribute, the significant impacts on the directional freeway segments identified above would be considered significant and unavoidable.



# 1.

## Introduction

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This report presents the results of the traffic impact analysis conducted for the proposed office development located at 2600-2880 San Tomas Expressway and 2400 Condensa Street in Santa Clara, California. The proposed project includes three new office buildings totaling 1,950,000 square feet (s.f.) with three accompanying parking structures and surface parking lots. A reduced project alternative totaling 1,500,000 s.f. also was analyzed. The project site is located on San Tomas Expressway and Condensa Street near the interchange of San Tomas Expressway and Central Expressway. Existing buildings on site totaling 691,214 square feet (509,862 s.f. of office space and 181,352 s.f. of research and development space) are mostly vacant and would be removed.

The project comprises two sites. The east project site, which is located between San Tomas Expressway and San Tomas Aquino Creek, would contain two connected buildings. This site would be served by one existing limited-access driveway on Walsh Avenue, one existing full-access driveway at a signalized intersection on Walsh Avenue and one modified existing right-turn-only driveway on San Tomas Expressway. The west project site, which is located immediately west of San Tomas Aquino Creek on Condensa Street, would contain one office building. The west project site would be served by four full-access driveways on Condensa Street. In addition, the east and west sites are connected by a bridge over the San Tomas Aquino Creek, allowing vehicular and pedestrian access to and from one site through the other. Each project building would be accompanied by a separate parking structure and surface parking lots.

The project site location and the surrounding study area are shown on Figure 1. The project site plan is shown on Figure 2. This traffic impact analysis documents the impacts to the surrounding transportation system associated with developing either the proposed project or the reduced project alternative.

## Scope of Study

The potential impacts related to the proposed development were evaluated following the standards and methodologies set forth by the City of Santa Clara, the City of San Jose, and the Santa Clara Valley



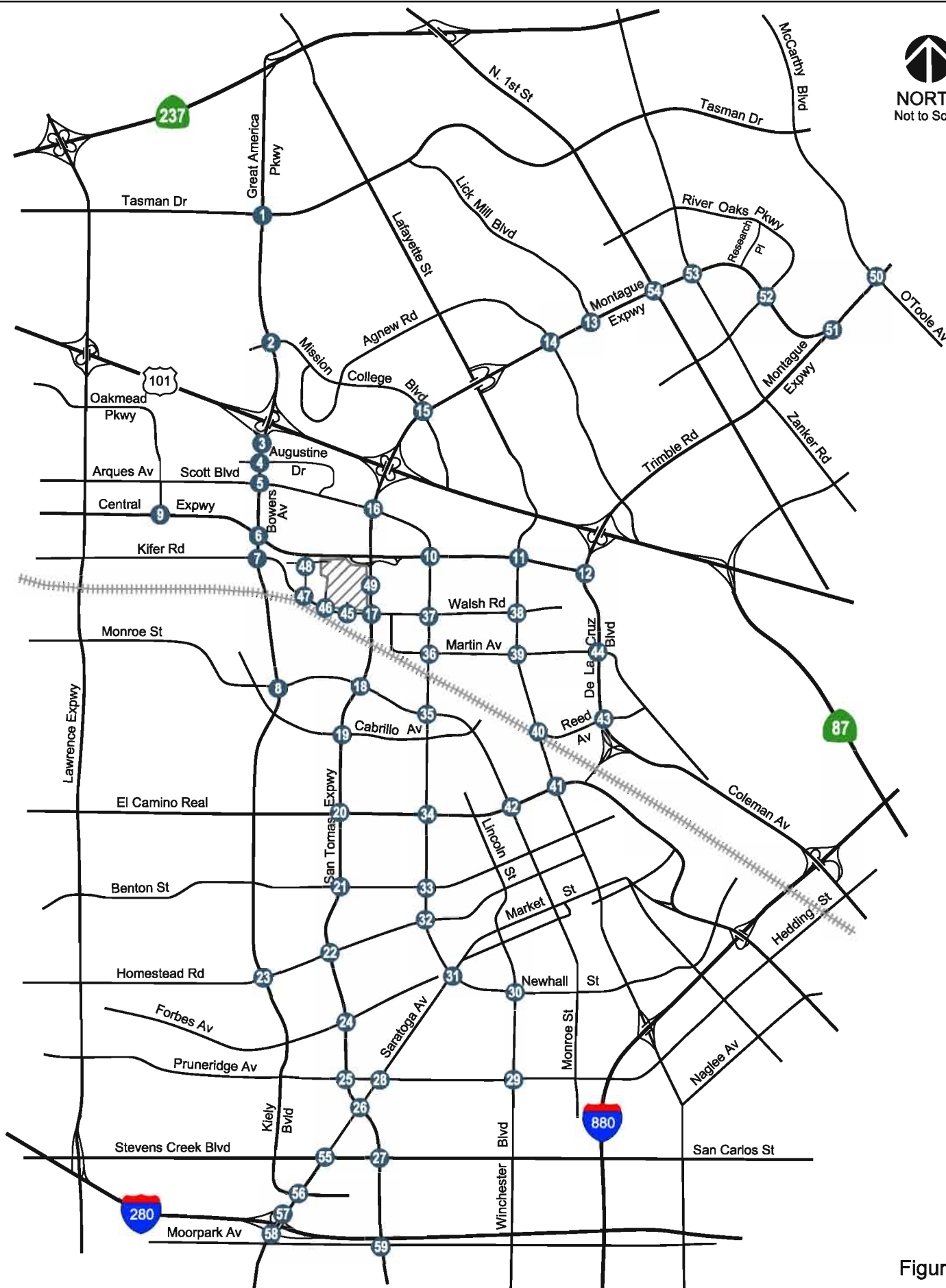
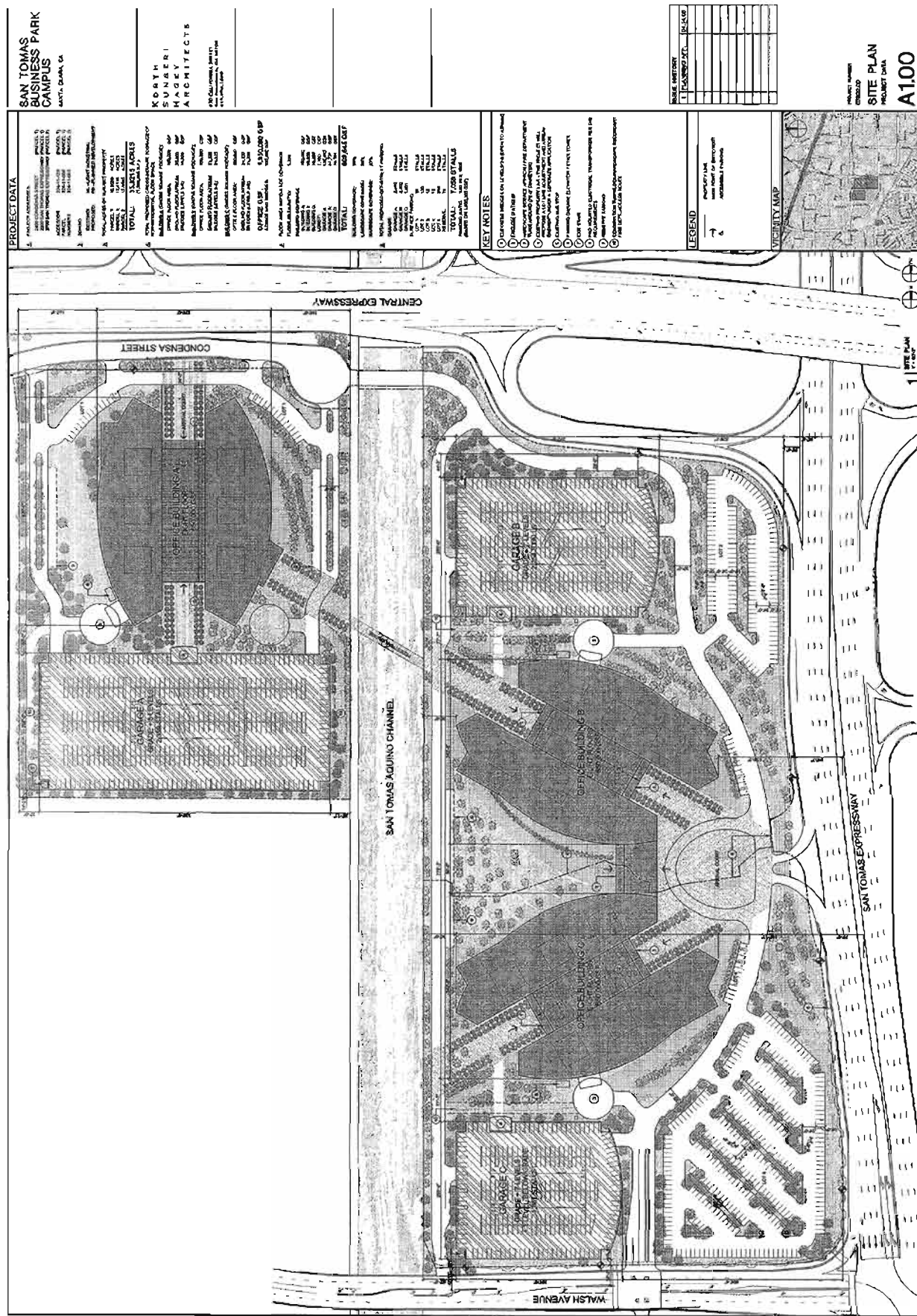


Figure 1

# SITE LOCATION AND STUDY INTERSECTIONS







Transportation Authority (VTA). The VTA administers the County Congestion Management Program (CMP). The study included an analysis of AM and PM peak-hour traffic conditions for 55 signalized intersections, 4 unsignalized intersections, and 10 freeway segments.

### ***City of Santa Clara Study Intersections***

Great America Parkway and Tasman Drive\*  
Great America Parkway and Mission College Boulevard\*  
Bowers Avenue and US 101 SB Ramps\*  
Bowers Avenue and Augustine Drive  
Bowers Avenue and Scott Boulevard\*  
Bowers Avenue and Central Expressway\*  
Bowers Avenue and Walsh Avenue  
Bowers Avenue and Monroe Street  
Oakmead Parkway and Central Expressway\*  
Scott Boulevard and Central Expressway\*  
Lafayette Street and Central Expressway\*  
De La Cruz Boulevard and Central Expressway\*  
Lick Mill Boulevard and Montague Expressway  
Agnew Road and Montague Expressway\*  
Mission College Boulevard and Montague Expressway\*  
San Tomas Expressway and Scott Boulevard\*  
San Tomas Expressway and Walsh Avenue  
San Tomas Expressway and Monroe Street\*  
San Tomas Expressway and Cabrillo Avenue  
San Tomas Expressway and El Camino Real\*  
San Tomas Expressway and Benton Street  
San Tomas Expressway and Homestead Road\*  
Kiely Boulevard and Homestead Road  
San Tomas Expressway and Forbes Avenue  
San Tomas Expressway and Pruneridge Avenue  
San Tomas Expressway and Saratoga Avenue\*  
San Tomas Expressway and Stevens Creek Boulevard\*  
Saratoga Avenue and Pruneridge Avenue  
Winchester Boulevard and Pruneridge Avenue  
Winchester Boulevard and Newhall Street  
Saratoga Avenue and Newhall Street  
Scott Boulevard and Homestead Road  
Scott Boulevard and Benton Street  
Scott Boulevard and El Camino Real\*  
Scott Boulevard and Monroe Street  
Scott Boulevard and Martin Avenue  
Scott Boulevard and Walsh Avenue  
Lafayette Street and Walsh Avenue  
Lafayette Street and Martin Avenue  
Lafayette Street and Reed Street  
Lafayette Street and El Camino Real\*  
Monroe Street and El Camino Real\*  
De La Cruz Boulevard and Reed Street



De La Cruz Boulevard and Martin Avenue  
East Site Driveway and Walsh Avenue  
West Site Driveway and Walsh Avenue (unsignalized)  
Northwestern Parkway and Walsh Avenue (unsignalized)  
Northwestern Parkway and Condensa Street (unsignalized)  
San Tomas Expressway and Site Driveway (unsignalized)

### ***City of San Jose Study Intersections***

O'Toole Avenue and Montague Expressway\*  
Montague Expressway and Trimble Road\*  
Montague Expressway and River Oaks Parkway  
Zanker Road and Montague Expressway\*  
North First Street and Montague Expressway\*  
Saratoga Avenue and Stevens Creek Boulevard\*  
Saratoga Avenue and Kiely Boulevard\*  
Saratoga Avenue and I-280 (N)\*  
Saratoga Avenue and I-280 (S)\*  
San Tomas Expressway and Moorpark Avenue\*

\* Denotes CMP Intersection.

### ***Study Freeway Segments***

Northbound U.S. 101 between SR 87 and De La Cruz Boulevard  
Northbound U.S. 101 between De La Cruz Boulevard and Montague Expressway  
Northbound U.S. 101 between Montague Expressway and Great America Parkway  
Northbound U.S. 101 between Great America Parkway and Lawrence Expressway  
Northbound U.S. 101 between Lawrence Expressway and Fair Oaks Avenue  
Southbound U.S. 101 between Fair Oaks Avenue and Lawrence Expressway  
Southbound U.S. 101 between Lawrence Expressway and Great America Parkway  
Southbound U.S. 101 between Great America Parkway and Montague Expressway  
Southbound U.S. 101 between Montague Expressway and De La Cruz Boulevard  
Southbound U.S. 101 between De La Cruz Boulevard and SR 87

Traffic conditions at all of the study intersections were analyzed for the weekday AM and PM peak hours. The weekday AM peak hour of traffic is generally between 7:00 and 9:00 AM and the weekday PM peak hour is typically between 4:00 and 6:00 PM. It is during these periods that the most congested traffic conditions occur on a typical weekday.

In summary, the study includes an analysis of 55 signalized and 4 unsignalized intersections in the vicinity of the project site. The 29 CMP signalized study intersections were evaluated against the standards of the Santa Clara County CMP. The 25 non-CMP signalized study intersections in the City of Santa Clara were evaluated against the standards of the City of Santa Clara. Both CMP and non-CMP signalized study intersections in the City of San Jose were evaluated against the standards of the City of San Jose. The operations of the four unsignalized study intersections in the City of Santa Clara also were evaluated; however, they are not subject to the City of Santa Clara's level of service policy.



Traffic conditions were evaluated for the following scenarios:

- Scenario 1:** *Existing Conditions.* Existing conditions were represented by existing peak-hour traffic volumes on the existing roadway network. Existing traffic volumes were obtained from recent traffic counts.
- Scenario 2:** *Background Conditions.* Background conditions were represented by future traffic volumes on the existing roadway network. Background traffic volumes were estimated by adding to existing peak-hour volumes the projected volumes from approved but not yet constructed developments in the study area. Background conditions represent the baseline conditions to which project conditions are compared for the purpose of determining project impacts.
- Scenario 3:** *Project Conditions.* Background plus project conditions (also referred to as *Project Conditions*) were represented by future traffic volumes with the project. Future traffic volumes with the project (hereafter called *project traffic volumes*) were estimated by adding to background traffic volumes the trips associated with the proposed project. Project conditions were evaluated relative to background conditions in order to determine potential project impacts.
- Scenario 4:** *Cumulative Conditions.* Cumulative conditions represent future traffic volumes on the future transportation network at the time the proposed project is anticipated to be complete (2010). Cumulative conditions include traffic growth projected to occur due to the approved development projects, the proposed project, other proposed but not yet approved (pending) development projects and general background traffic increases.
- Scenario 5:** *Reduced Project Alternative Conditions.* Project traffic volumes were estimated by adding to background traffic volumes the trips associated with the proposed reduced project alternative. Project conditions were evaluated relative to background conditions in order to determine potential project impacts.

## Methodology

This section presents the methods used to determine the traffic conditions for each scenario described above. It includes descriptions of the data requirements, the analysis methodologies, and the applicable level of service standards.

### Data Requirements

The data required for the analysis were obtained from previous traffic studies, the City of Santa Clara, the City of San Jose, Santa Clara County, and field observations. The following data were collected from these sources:

- existing traffic volumes
- lane configurations
- signal timing and phasing
- average speeds on freeway segments
- a list of approved and planned projects



## Level of Service Standards and Analysis Methodologies

Traffic conditions at the study intersections were evaluated using level of service (LOS). *Level of Service* is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. The analysis method is described below.

### City of Santa Clara Signalized Intersections

The City of Santa Clara uses the TRAFFIX methodology to determine levels of service, which is based on the Highway Capacity Manual (HCM) method for signalized intersections. TRAFFIX evaluates signalized intersections operations on the basis of average delay time for all vehicles at the intersection. Since TRAFFIX is also the CMP-designated intersections level of service methodology, the City of Santa Clara methodology employs the CMP default values for the analysis parameters. The City of Santa Clara level of service standard for City-controlled signalized intersections is LOS D or better. The standard for intersections controlled by the County (Expressway intersections) is LOS E. The correlation between average delay and level of service is shown in Table 1.

**Table 1**  
**Signalized Intersection Level of Service Definitions Based on Delay**

Level of Service	Description	Average Control Delay Per Vehicle (Sec.)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	Up to 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.1 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	Greater than 80.0

Source: Transportation Research Board, *2000 Highway Capacity Manual*, (Washington, D.C., 2000).



## City of San Jose Signalized Intersections

Ten study intersections are within the jurisdiction of the City of San Jose. All ten study intersections in San Jose, including both CMP and non-CMP intersections, are subject to the City of San Jose level of service standards. The City of San Jose level of service methodology and standard for signalized intersections is LOS D or better, which is the same as that for the City of Santa Clara.

## CMP Intersections

Since TRAFFIX is the designated level of service methodology for the CMP, the City of Santa Clara, and the City of San Jose, the CMP study intersections are not analyzed separately, but rather are among the City of Santa Clara and City of San Jose signalized intersections analyzed using TRAFFIX. The only difference between the City of Santa Clara, the City of San Jose and CMP analyses is that project impacts are determined on the basis of different level of service standards – the CMP level of service standard for signalized intersections is LOS E or better.

## Unsignalized Intersections

The unsignalized study intersections were analyzed with the TRAFFIX level of service software, which uses the *Highway Capacity Manual* (HCM) 2000 methodology for unsignalized intersections. The level of service at two-way stop control (TWSC) intersections is based on the average control delay time for the worst controlled lane group. The correlation between average control delay and level of service at unsignalized intersections is shown in Table 2. The City of Santa Clara does not have a level of service standard for unsignalized intersections. The four unsignalized study intersections were analyzed for operational purposes.

## Freeway Segments

As prescribed in the CMP technical guidelines, the level of service for freeway segments is estimated based on vehicle density. Density is calculated by the following formula:

$$D = V / (N * S)$$

where:

D= density, in vehicles per mile per lane (vpmpl)

V= peak hour volume, in vehicles per hour (vph)

N= number of travel lanes

S= average travel speed, in miles per hour (mph)

The vehicle density on a segment is correlated to level of service as shown in Table 3. The CMP specifies that a capacity of 2,300 vehicles per hour per lane (vphpl) be used for mixed-flow lane segments that are three lanes or wider in one direction, and a capacity of 2,200 vphpl be used for mixed-flow lane segments that are two lanes wide in one direction. A capacity of 1,800 vphpl was used for high occupancy vehicle (HOV) lanes. The CMP defines an acceptable level of service for freeway segments as LOS E or better.



**Table 2**  
**Unsignalized Intersection Level of Service Definitions Based on Delay**

Level of Service	Description	Average Control Delay Per Vehicle (Sec.)
A	Operations with very low delay occurring with favorable progression .	10.0 or less
B	Operations with low delay occurring with good progression.	10.1 to 15.0
C	Operations with average delays resulting from fair progression.	15.1 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression or high V/C ratios.	25.1 to 35.0
E	Operations with high delay values indicating poor progression and high V/C ratios. This is considered to be the limit of acceptable delay.	35.1 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation and poor progression.	Greater than 50.0

Source: Transportation Research Board, *Highway Capacity Manual 2000* .

## Report Organization

The remainder of this report is divided into six chapters. Chapter 2 describes existing conditions in terms of the existing roadway network, transit service, and existing bicycle and pedestrian facilities. Chapter 3 presents the intersection levels of service under background conditions with the addition of traffic from approved development projects. Chapter 4 describes the method used to estimate project traffic and its impact on the transportation system and describes the recommended mitigation measures. Chapter 5 presents the traffic conditions in the study area under cumulative conditions with the addition of traffic from development projects that are not yet approved. Chapter 6 describes the traffic impact and recommended mitigation measures for the reduced project alternative scenario. Chapter 7 presents the conclusions of the traffic impact analysis.

**Table 3**  
**Freeway Level of Service Definitions Based on Density**

Level of Service	Description	Density (vehicles/mile/lane)
A	Average operating speeds at the free-flow speed generally prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	0-11
B	Speeds at the free-flow speed are generally maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high.	>11-18
C	Speeds at or near the free-flow speed of the freeway prevail. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more vigilance on the part of the driver.	>18-26
D	Speeds begin to decline slightly with increased flows at this level. Freedom to maneuver within the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort levels.	>26-46
E	At this level, the freeway operates at or near capacity. Operations in this level are volatile, because there are virtually no usable gaps in the traffic stream, leaving little room to maneuver within the traffic stream.	>46-58
F	Vehicular flow breakdowns occur. Large queues form behind breakdown points.	>58

Source: Santa Clara County 2004 CMP (Based on the *Highway Capacity Manual* (2000), Washington, D.C.).

## 2. Existing Conditions

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This chapter describes the existing conditions for all of the major transportation facilities in the vicinity of the site, including the roadway network, transit service, and bicycle and pedestrian facilities.

### Existing Roadway Network

Regional access to the project site is provided via US 101 as described below.

*US 101* is an eight-lane (three mixed-flow lanes and one HOV lane in each direction) freeway in the vicinity of the site. It extends north through San Francisco and south through Gilroy. Regional access to the project site is provided via its interchanges with De La Cruz Boulevard/Trimble Road, San Tomas Expressway/Montague Expressway, and Great America Parkway/Bowers Avenue.

Local access to the site is provided by San Tomas Expressway/Montague Expressway, Central Expressway, Scott Boulevard, Bowers Avenue/Great America Parkway/Kiely Boulevard, Lafayette Street, De La Cruz Boulevard, Walsh Avenue, Northwestern Parkway, and Condensa Street. These roadways are described below.

*San Tomas Expressway* is a north-south expressway that begins at US 101 and extends southward through Santa Clara and San Jose and into Campbell, where it transitions into Camden Avenue at SR 17. Full interchanges are located at US 101 and SR 17. In the north, San Tomas Expressway is an eight-lane roadway including carpool lanes (also known as high-occupancy vehicle (HOV) lanes). North of El Camino Real, the HOV lane designation is in effect in both directions of travel during both the AM and PM peak commute hours. During other times, the lane is open to all users. South of El Camino Real, San Tomas narrows to a 6-lane facility including HOV lanes. The HOV lane designation in this segment is in effect for only the peak direction of travel (northbound in the AM and southbound in the PM). San Tomas Expressway provides access to and from the project site via Walsh Avenue and a site access driveway north of Walsh Avenue.





*Montague Expressway* is an east-west expressway that begins at I-680 in the east and extends through I-880 to US 101 in the west, where it transitions to San Tomas Expressway. Between I-880 and US 101, Montague Expressway is primarily an eight-lane expressway, including HOV lanes. The HOV lane designation is in effect in both directions of travel during both the AM and PM peak hours. Full interchanges are present at I-680, I-880, and US 101.

*Central Expressway* is a six-lane east-west expressway with HOV lanes within the study area. The HOV lane designation is in effect in both directions of travel during both the AM and PM peak commute hours. Central Expressway begins at its junction with De La Cruz Boulevard and extends westward into Palo Alto, where it transitions into Alma Street at San Antonio Road. Central Expressway provides access to and from the project site via Northwestern Parkway and ramps to and from San Tomas Expressway.

*Bowers Avenue* is a thoroughfare running north-south between US 101 and El Camino Real. North of Walsh Avenue, Bowers Avenue is a six-lane roadway, whereas south of Walsh Avenue it is a four-lane facility. A full interchange is present at US 101. North of US 101, Bowers Avenue becomes Great America Parkway, while south of El Camino Real its name changes to Kiely Boulevard.

*Great America Parkway* is a north-south thoroughfare running between SR 237 in the north and US 101 in the south. It is an eight-lane facility south of Mission College Boulevard. Between Mission College Boulevard and Tasman Drive, it has four lanes northbound and three-lanes southbound. It is a six-lane facility between Tasman Drive and SR 237. A full interchange is present at US 101, where Great America Parkway transitions to Bowers Avenue.

*Walsh Avenue* is an east-west thoroughfare that runs from just east of Lafayette Street to Bowers Avenue, where it transitions to Kifer Road. East of San Tomas Expressway, Walsh Avenue is a four-lane road without a median. In the immediate area of the project site, Walsh Avenue has a raised median with left turn lanes. West of the project site, Walsh Avenue has a two-way center left-turn lane. Walsh Avenue provides direct access to the project site via one full-access driveway at a signalized intersection 350 feet west of San Tomas Boulevard and one limited-access driveway at an unsignalized intersection 250 feet to the west of the signalized intersection. Walsh Avenue also provides access to the project site via Northwestern Parkway, located approximately 2,000 feet west of San Tomas Expressway.

*Northwestern Parkway* is a north-south local street running between Central Expressway and Walsh Avenue. It is a two-lane road without a median. Its intersection with Walsh Avenue is stop-controlled for Northwestern Parkway and uncontrolled for Walsh Avenue. Its intersection with Central Expressway is right-turn only and stop-controlled for Northwestern Parkway.

*Condensa Street* is a local east-west public street that extends approximately 900 feet to the east of Northwestern Parkway, ending in a cul-de-sac. A bridge across the San Tomas Aquino Creek connects to the Condensa Street cul-de-sac, providing vehicular and pedestrian access between the eastern and western portions of the project site. The Northwestern Parkway and Condensa Street intersection is located 50 feet south of the Northwestern Parkway and Central Expressway intersection. The western leg of the Northwestern Parkway/Condensa Street intersection is a private access road that extends 500 feet to the west. This private access road is blocked by a gated fence. The eastern leg at this intersection is controlled by a yield sign, while Northwestern Parkway is uncontrolled. Condensa Street provides direct access to the project site via four full-access driveways. Condensa Street also provides access to another office/industrial development immediately west of the project site.



*Kiely Boulevard* is a north-south four-lane thoroughfare that extends southward from its connection with Bowers Avenue at El Camino Real, approximately two miles to Stevens Creek Boulevard, where it begins a turn toward the east and intersects Saratoga Avenue before terminating at Boynton Avenue.

*Scott Boulevard* is primarily a four-lane north-south thoroughfare that runs from Oakmead Parkway to Saratoga Avenue in Santa Clara. North of Central Expressway, Scott Boulevard is a divided roadway with intermediate median breaks for left-turn lanes. South of Central Expressway, Scott Boulevard has a two-way center left-turn lane.

*Lafayette Street* is a north-south thoroughfare that runs from SR 237 to Bellomy Street near Santa Clara University, where it transitions to Washington Street. It is a four-lane roadway with a center two-way left-turn lane. From SR 237 in the north to Central Expressway, Lafayette Street has raised medians with intermittent breaks for left-turn lanes. South of Central Expressway, it has a center two-way left-turn lane with intermittent left-turn pockets until its transition into Washington Street in downtown Santa Clara.

*De La Cruz Boulevard* is a thoroughfare that runs north-south for approximately one mile and connects Trimble Road at Central Expressway in the north with Coleman Avenue and El Camino Real in the south. A full interchange is present at Trimble Road and US 101 one-quarter mile north of Central Expressway.

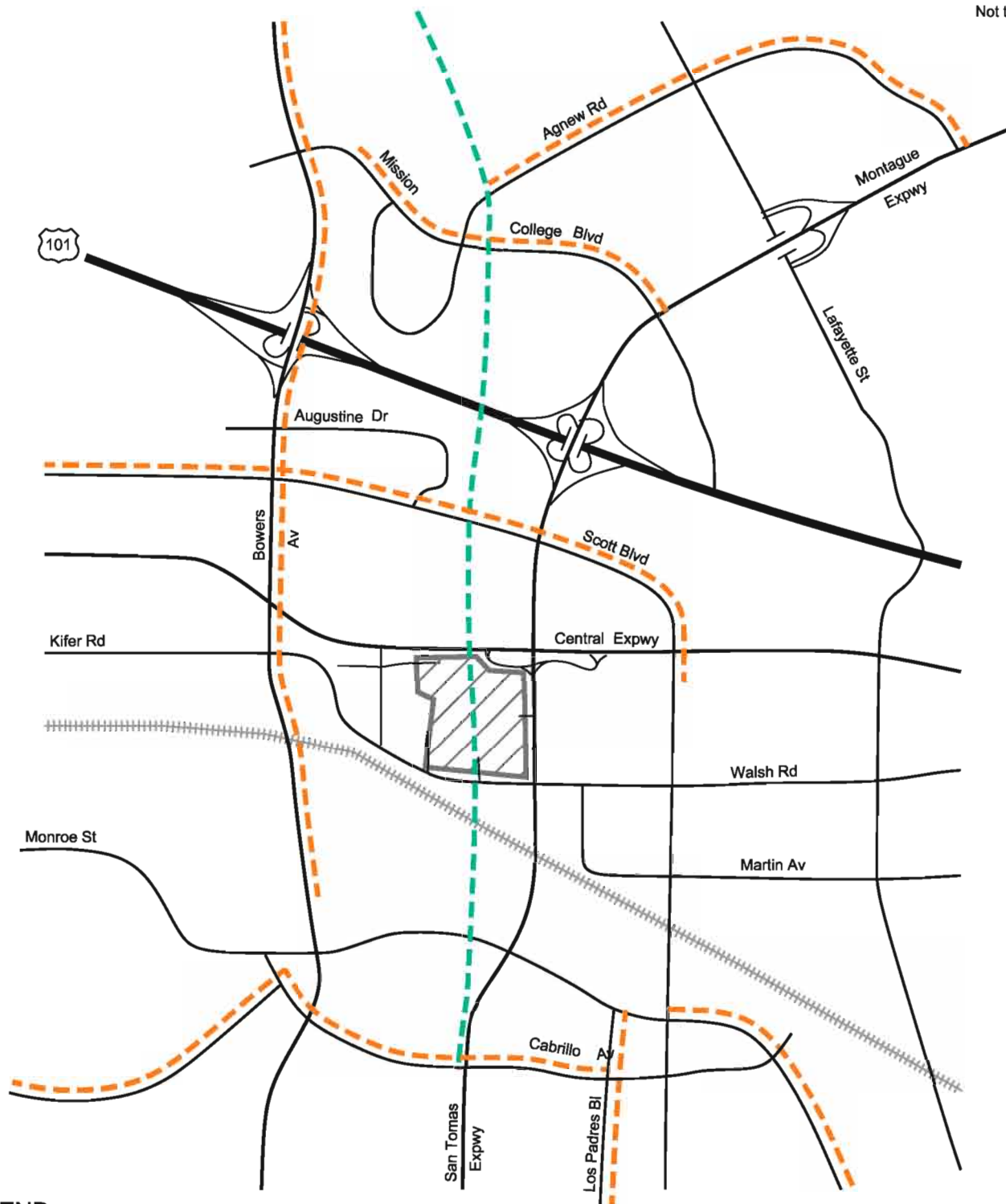
## **Existing Bicycle and Pedestrian Facilities**

In the vicinity of the project site, Bowers Avenue/Great America Parkway has bike lanes from Cabrillo Avenue to SR 237. Scott Boulevard has bike lanes from Central Expressway to Arques Avenue in Sunnyvale. Los Padres Boulevard has bike lanes from Pruneridge Avenue to Monroe Street. Cabrillo Avenue has bike lanes from Los Padres Avenue to Lawrence Expressway. There is a bike path adjacent to San Tomas Aquino Creek that extends from Scott Boulevard to Great America Parkway and Sunnyvale Baylands Park. An extension to this trail connecting to Cabrillo Avenue is slated to open in 2008. Bicycles are also permitted on San Tomas and Central Expressways. Bikes are allowed on the VTA Light Rail and on Caltrain. Park and Ride stations are located at the Lawrence and Santa Clara Transit Center Caltrain Stations. The existing bicycle facilities within the study area are shown on Figure 3.

Due to the project's location adjacent the interchange of two county expressways, pedestrian facilities in the project area are limited. A segment of sidewalk is present on the west side of San Tomas Expressway from the Walsh Avenue intersection north to a bus stop in front of the project site. A similar sidewalk segment and bus stop are present on the east side of San Tomas Expressway at this location. The north side of Walsh Avenue has a sidewalk from San Tomas Expressway to the west side of San Tomas Aquino Creek. West of the creek, there is no sidewalk on the north side of the street to the west side of Northwestern Parkway, where the sidewalk resumes in interrupted segments to Bowers Avenue. The south side of Walsh Avenue has a sidewalk from Bowers Avenue to San Tomas Expressway. East of San Tomas Expressway, sidewalks are present on both sides of Walsh Avenue to Scott Boulevard.

Crosswalks with pedestrian signal heads and pushbutton actuators are present on the south, east and west approaches to the San Tomas Expressway and Walsh Avenue intersection. A crosswalk with pedestrian signal heads and pushbutton actuators is present only on the west approach to the signalized project driveway on Walsh Avenue. No crosswalks are present at the unsignalized project driveways.





#### LEGEND

-  = Bike Lane
-  = Bike Path

Figure 3

## EXISTING BICYCLE FACILITIES

San Tomas Business Park

A crosswalk is present on the western approach to the Northwestern Parkway and Walsh Avenue intersection. This intersection is uncontrolled for the eastbound and westbound directions of traffic. No sidewalks are present on either side of Northwestern Parkway.

A sidewalk segment is present in front of the project site on the south side of Condensa Street. This segment is not connected to the Condensa Street Bridge over San Tomas Aquino Creek. A sidewalk is present on the bridge. This sidewalk segment is not connected to Northwestern Parkway. No crosswalks are present at the Northwestern Parkway/Condensa Street intersection.

## Existing Transit Service

The VTA operates several bus routes in the vicinity of the project site. The VTA bus service is described below and shown on Figure 4. The VTA bus lines that operate within walking distance of the project site are listed in Table 4.

**Table 4**  
**VTA Bus Service in the Study Area**

Route	Route Description	Headways <sup>1</sup> (minutes)
Community Bus Route 32	Santa Clara Transit Center to San Antonio Shopping Center	25-35
Local Route 57	West Valley College to Great America	30
Local Route 58	West Valley College to Alviso	30
Local Route 60	Winchester Transit Center to Great America	15
Express Route 121 <sup>2</sup>	Gilroy Transit Center to Lockheed Martin Transit Center/Moffett Park	30-60
Express Route 122 <sup>2</sup>	South San Jose to Lockheed Martin Transit Center/Moffett Park	NA
Express Route 140 <sup>2</sup>	Fremont BART to Mission College & Montague Expressway	25-45
Limited Stop Route 304 <sup>2</sup>	South San Jose to Sunnyvale Transit Center	25-35
Limited Stop Route 330 <sup>2</sup>	Almaden and Camden to Tasman Drive	45-55

<sup>1</sup> Headways during peak periods.

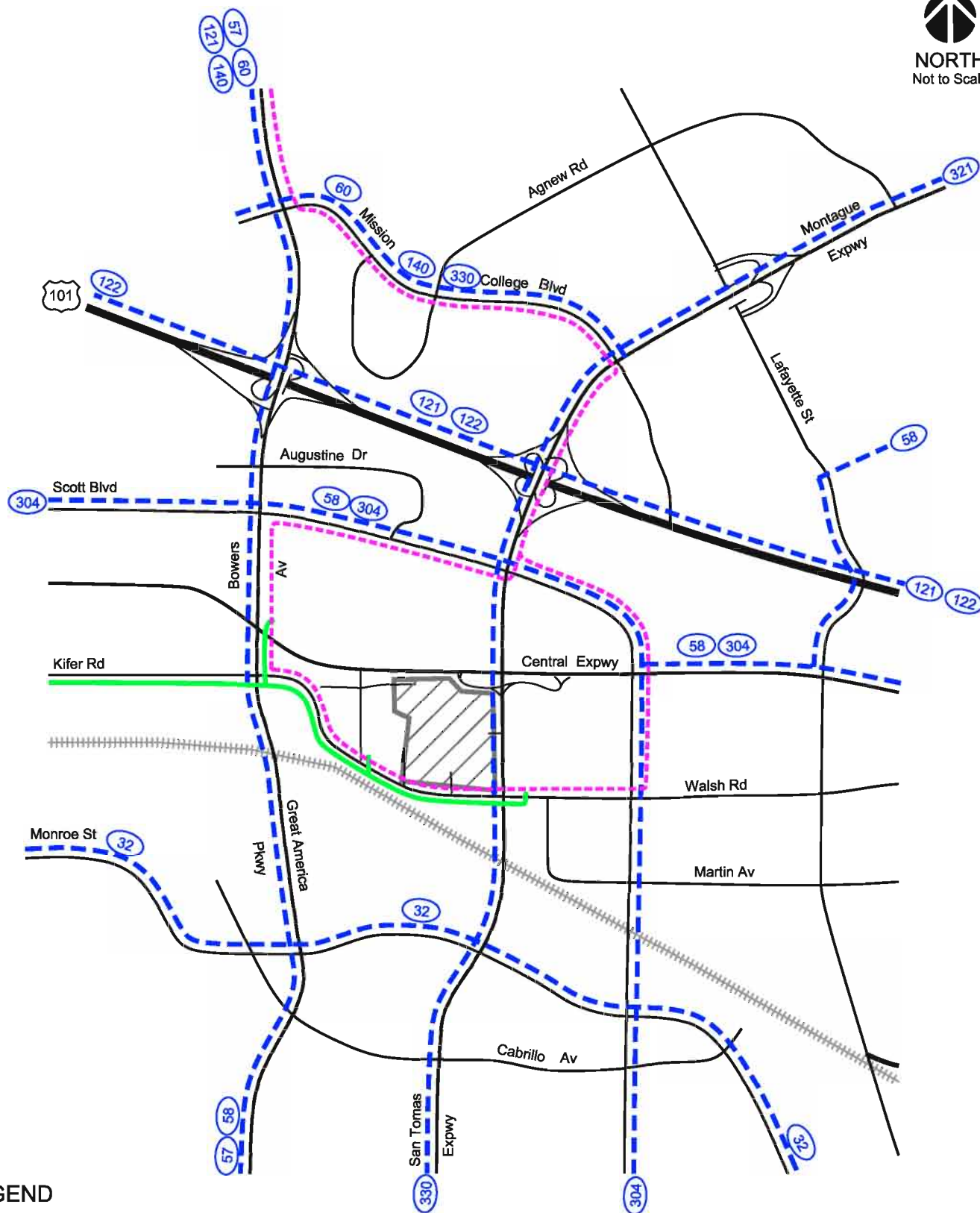
<sup>2</sup> Limited hours of operation.

Community Route 32 operates on Monroe Street in the study area. It runs between the Santa Clara Transit Center and San Antonio Shopping Center, with 25 to 35 minute headways during the peak hours eastbound and westbound. Route 32 operates between 6:00 AM and 8:00 PM.

Local Route 57 operates on Bowers Avenue and Great America Parkway in the study area. It runs from West Valley College to Old Ironsides Light Rail Station and Great America with 30-minute headways in the AM and PM peak hours. Route 57 operates between 5:30 AM and 10:45 PM.

Local Route 58 operates on Bowers Avenue and Scott Boulevard in the study area. It runs from West Valley College to Alviso with 30 minute headways during the AM and PM peak hours. Route 58 operates between 5:45 AM and 8:00PM. Stops for routes 57 and 58 are present in both directions of travel on Bowers Avenue just south of Walsh Avenue.





## LEGEND

- = Bus Route
- = Caltrain
- = Caltrain Shuttle
- = ACE Shuttle

Figure 4

# EXISTING TRANSIT SERVICE

San Tomas Business Park

Local Route 60 operates on Winchester Boulevard, Monroe Street, and Scott Boulevard in the study area. It runs between Winchester Transit Center and Great America. Route 60 runs between 5:00 AM and 10:00 PM with 15 minute headways during the AM and PM peak hours.

Express Route 121 operates on US 101, Great America Parkway, and Tasman Drive during peak hours, with stops at Old Ironsides/Great America Light Rail Station and at all the express stops on its route in the study area. Route 121 operates between Gilroy Transit Center and the Lockheed Martin Transit Center/Moffett Park only during peak hours and with 30 to 60-minute headways. It operates northbound during the AM peak hour and southbound during the PM peak hour.

Express Route 122 operates on US 101, Great America Parkway, and Tasman Drive during peak hours, with stops at Old Ironsides/Great America Light Rail Station and at all the express stops on its route in the study area. Route 122 operates between South San Jose and the Lockheed Martin Transit Center/Moffett Park only during peak hours and with one trip each during the AM and PM peak hours. It operates northbound during the AM peak hour and southbound during the PM peak hour.

Limited Stop Route 304 operates on De La Cruz Parkway and Scott Boulevard on its route between South San Jose and the Sunnyvale Transit Center weekdays only during the peak hours with 25-45 minute headways. It operates northbound during the AM peak hours and southbound during the PM peak hours and observes all limited stops on its route in the study area.

Limited Stop Route 330 operates on San Tomas Expressway, Montague Expressway, Mission College Boulevard, Great America Parkway, and Tasman Drive on its route between Almaden Expressway and Camden and the I-880/Milpitas Light Rail Station on Tasman Drive at Alder Drive. It operates northbound with 45 to 50 minute headways during the AM peak hours and southbound with 45 to 55 minute headways during the PM peak hours. Route 330 observes all limited stops along its route in the study area. Stops for Route 330 are present in both the northbound and southbound directions of travel on San Tomas Expressway, just north of Walsh Avenue.

The study area is also served by Caltrain and by the ACE system. The Caltrain system offers service between San Francisco and Gilroy, with nearby stations including the Lawrence and Santa Clara Caltrain Stations. Limited stop trains observe stops at the Santa Clara and Lawrence Stations, with 20-45-minute headways northbound and 30-40-minute headways southbound. Caltrain operates the Bowers/Walsh Area Caltrain Shuttle, which runs on Kifer Road/Walsh Avenue between the Lawrence Caltrain Station and the Nvidia Site east of San Tomas Expressway and Walsh Avenue. The shuttle operates during the AM and PM peak hours only, with 30 to 40-minute headways during the AM peak hours and 50-60-minute headways during the PM peak hours.

The Altamont Commuter Express (ACE) operates between San Jose Diridon Station and Stockton westbound during the AM peak hours and eastbound during the PM peak hours. The Great America ACE station is located at Lafayette Street and Tasman Drive. Headways at the Great America ACE station are 45 to 65 minutes during peak hours. The 827 ACE Yellow Shuttle operates between the Great America ACE station and the project site area. The Yellow Shuttle operates southbound from the ACE station during the AM peak hours and northbound during the PM peak hours only, with one-hour headways, approximately. A stop for the ACE Yellow Shuttle is present in the westbound direction of Walsh Avenue at the eastern signalized site access driveway. Other stops for the ACE Yellow Shuttle are present at additional locations east and west of the project site along Walsh Avenue, and on Bowers Avenue, Scott Boulevard, and other locations on its route. The ACE system is operated by the San Joaquin Regional Rail Commission (SJRRRC).





## Existing Intersection Lane Configurations

The existing lane configurations at the study intersections were determined by observations in the field and are shown on Figure 5.

## Existing Traffic Volumes

Existing peak-hour traffic volumes were obtained from the City of Santa Clara's TRAFFIX database, previous traffic studies, and new traffic counts. New peak-hour intersection turning-movement counts were conducted at locations where recent counts were not available. The existing peak-hour intersection volumes are shown on Figure 6. The traffic count data are included in Appendix A. Peak hour intersection turning movement volumes for all intersections and study scenarios are tabulated in Appendix C.

## Existing Intersection Levels of Service

The results of the level of service analysis under existing conditions are summarized in Table 5. The results show that the following intersections currently operate at unacceptable levels of service:

De La Cruz Boulevard and Central Expressway (CMP)	PM Peak Hour
San Tomas Expressway and Homestead Road (CMP)	AM Peak Hour
San Tomas Expressway and Stevens Creek Boulevard (CMP)	PM Peak Hour
McCarthy Blvd. /O'Toole Ave. and Montague Expressway (San Jose)	PM Peak Hour
North First Street and Montague Expressway (San Jose and CMP)	AM and PM Peak Hours

All of the other signalized study intersections currently operate at acceptable levels of service under existing conditions. The level of service calculation sheets are included in Appendix D.

The City of Santa Clara has not established a level of service standard for unsignalized intersections. The unsignalized study intersections operate well under existing traffic volumes at LOS B or better.

## Existing Freeway Levels of Service

Traffic volumes for the subject freeway segments were obtained from the 2006 CMP Annual Monitoring Report. The results of the analysis are summarized in Table 6. The results show that the mixed-flow lanes on nine of the fourteen directional freeway segments analyzed currently operate at an unacceptable LOS F during at least one of the peak hours. The results also show that three of directional HOV lane segments analyzed currently operate at an unacceptable LOS F during at least one of the peak hours.

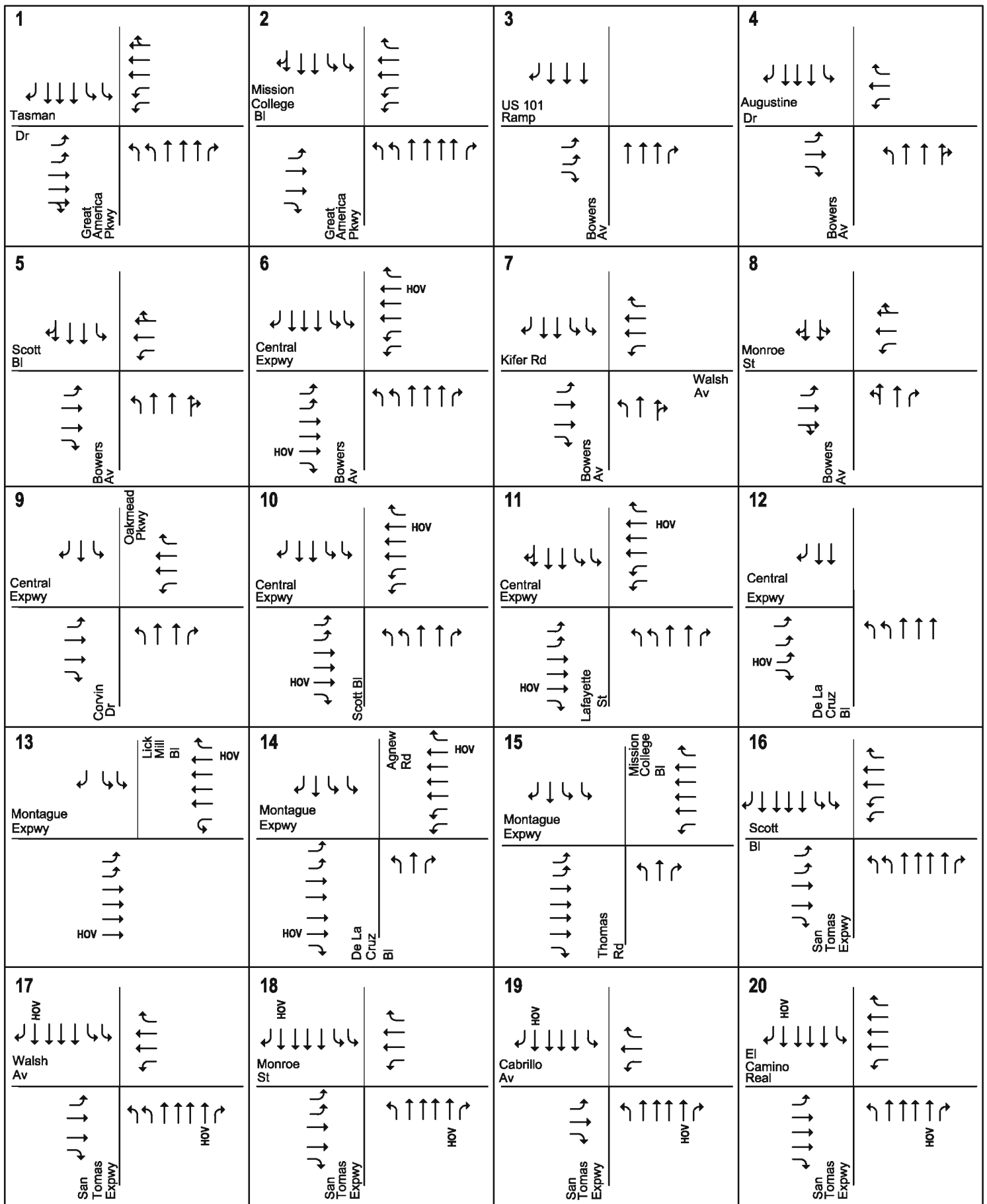


Figure 5

# EXISTING LANE CONFIGURATIONS



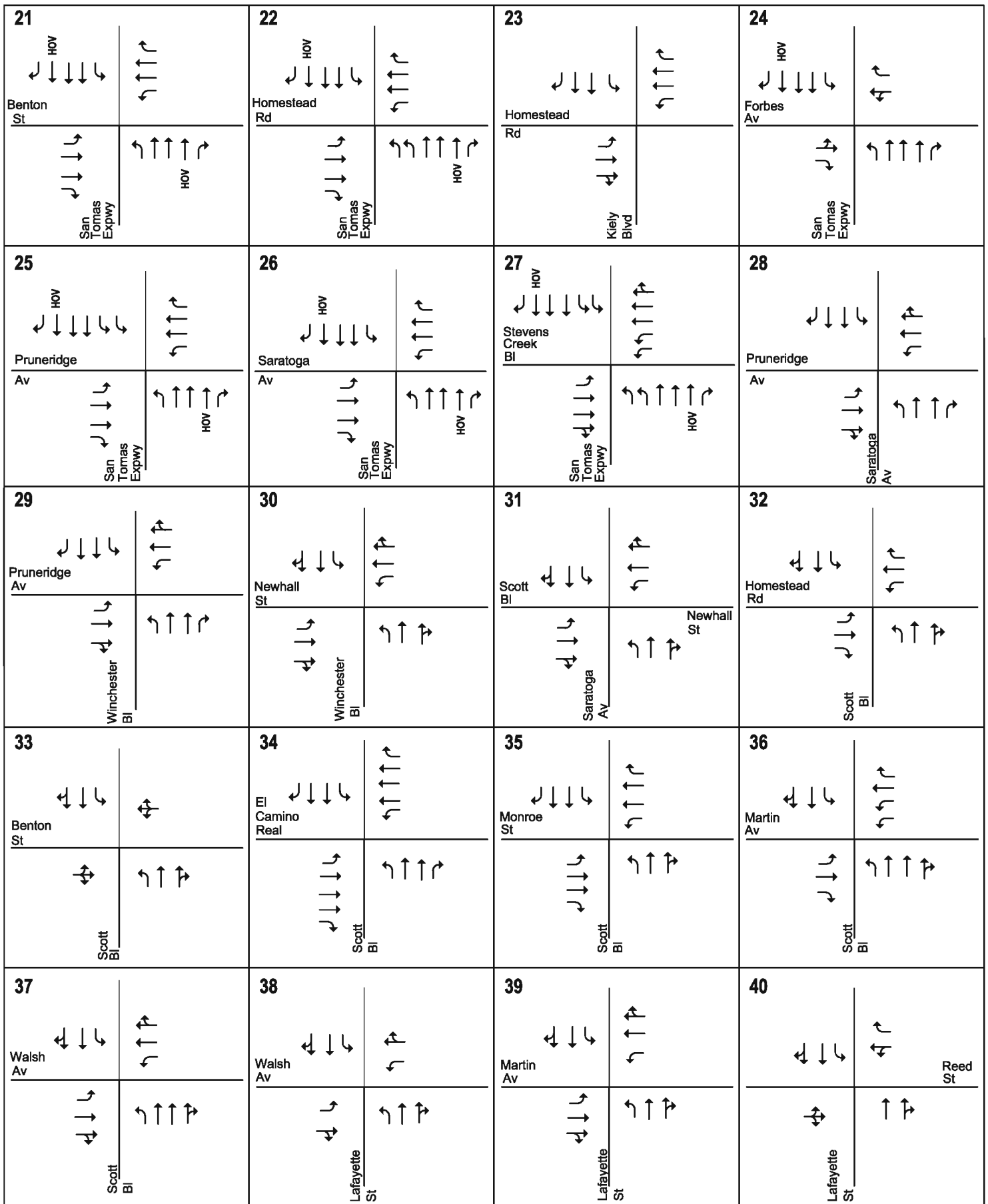


Figure 5

## EXISTING LANE CONFIGURATIONS

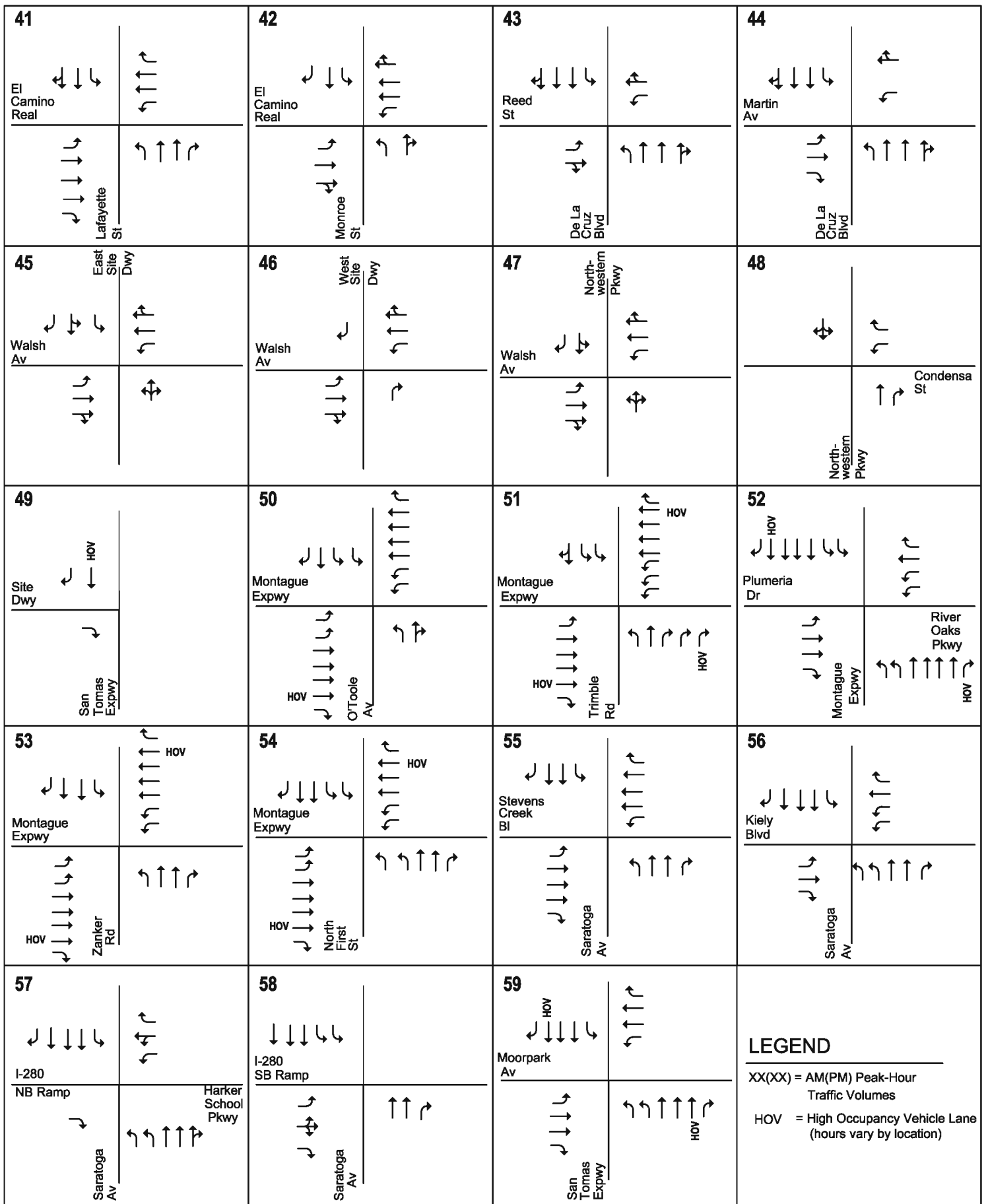


Figure 5

## EXISTING LANE CONFIGURATIONS

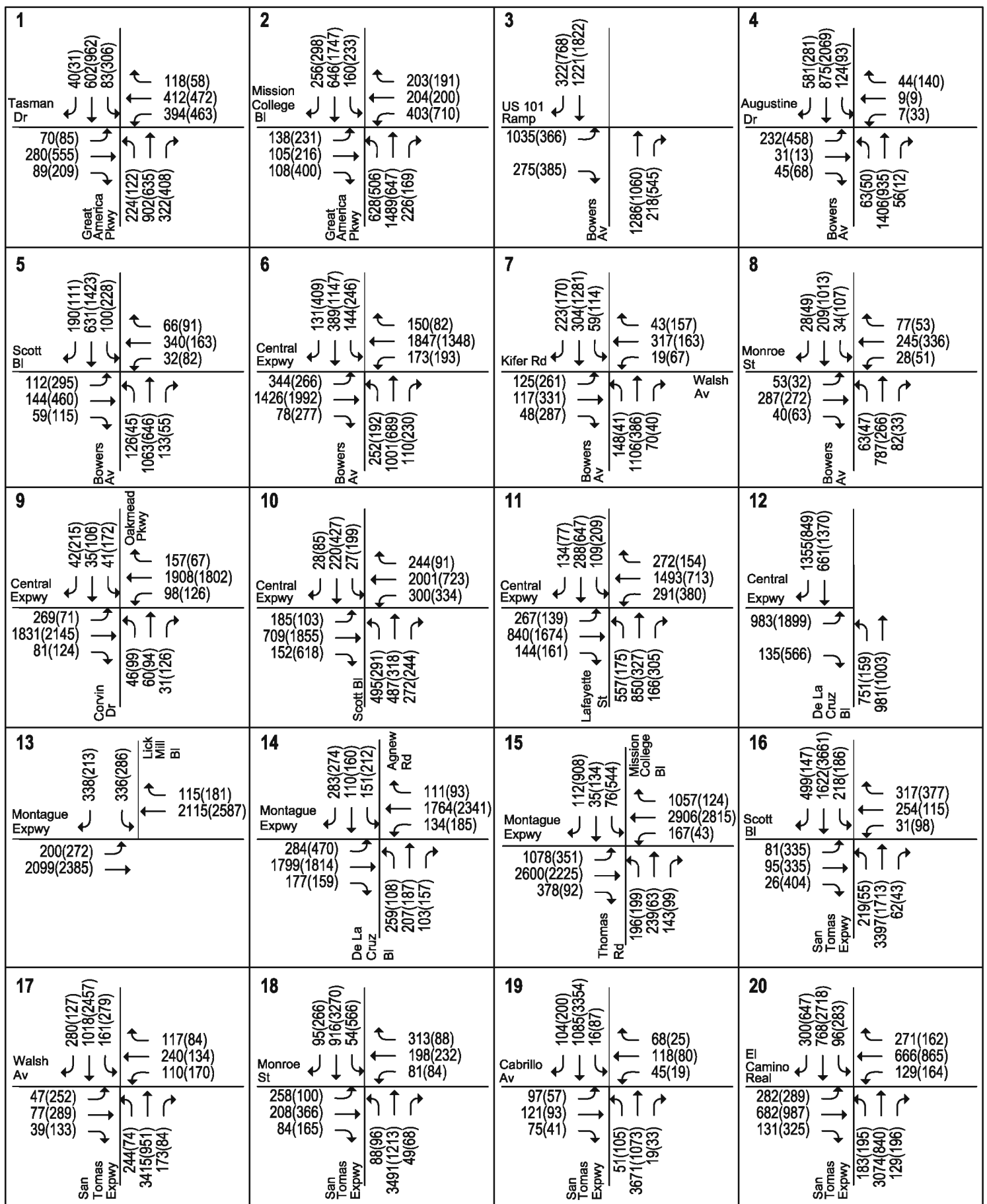


Figure 6

# EXISTING TRAFFIC VOLUMES

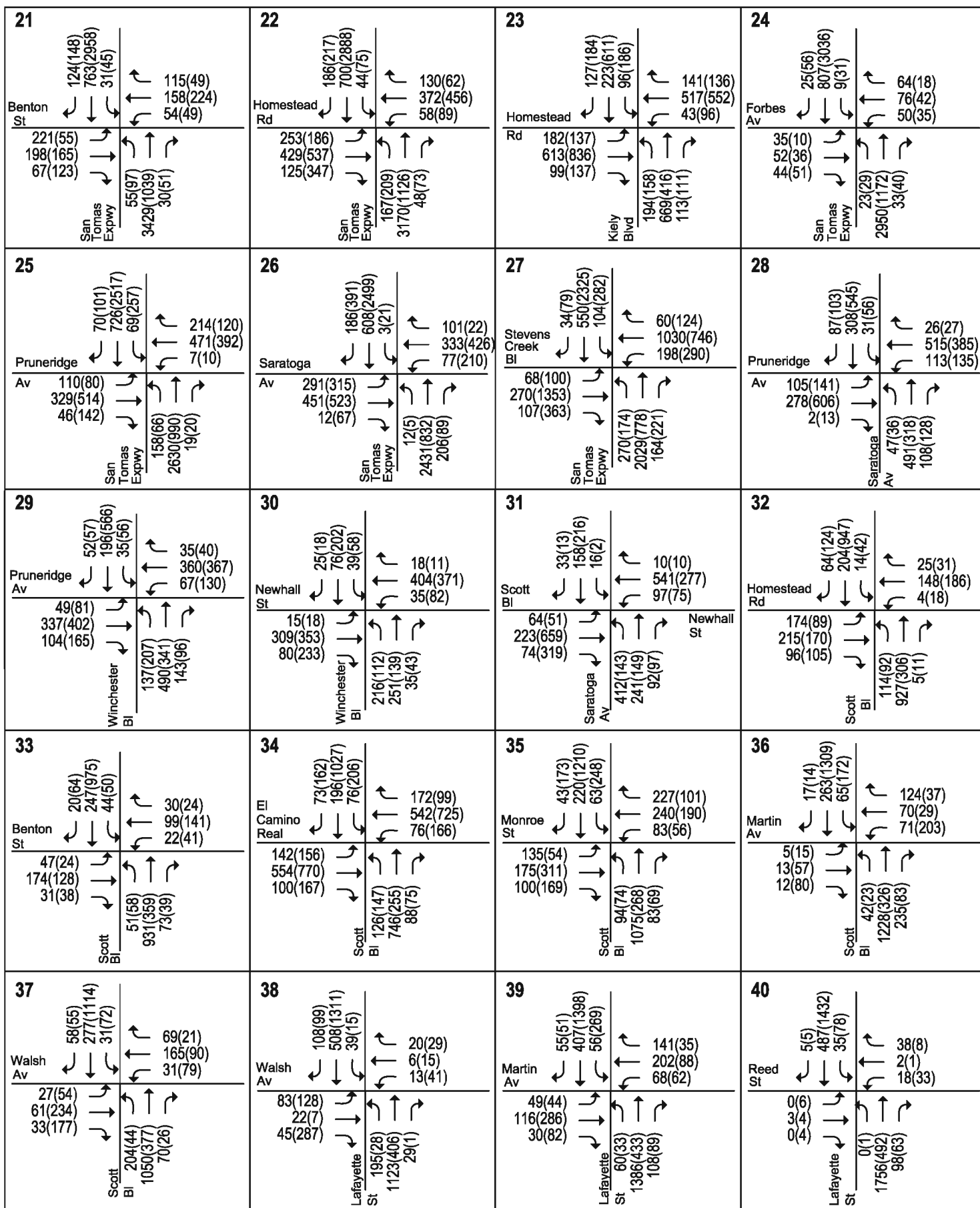


Figure 6

# EXISTING TRAFFIC VOLUMES

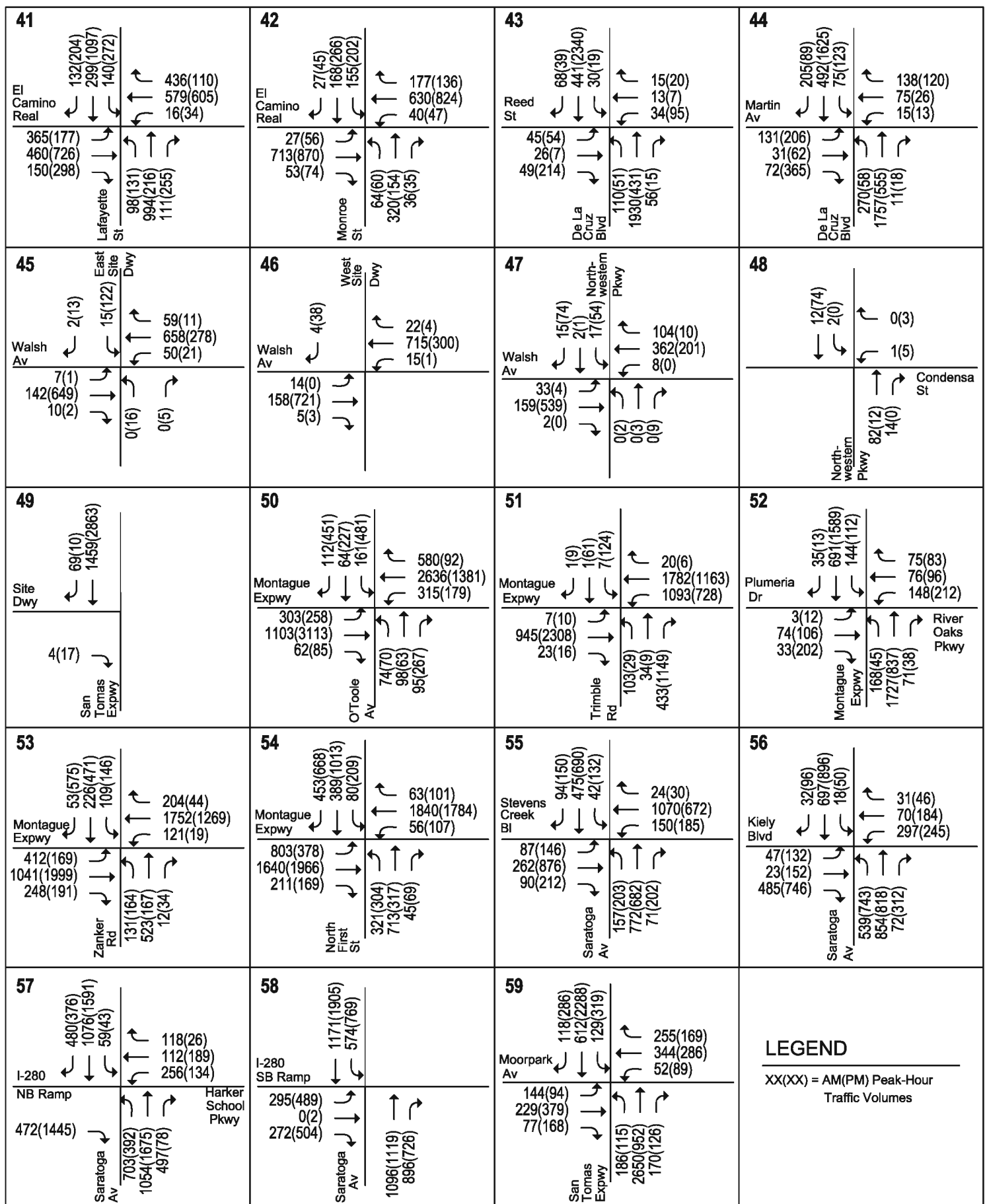


Figure 6

# EXISTING TRAFFIC VOLUMES

**Table 5**  
**Existing Intersection Levels of Service**

Study Intersection	Peak HourD	Count ate	Existing	
			Avg. Del.	LOS
<b><u>Santa Clara Intersections</u></b>				
1 Great America Parkway & Tasman Drive*	AM	10/12/06	26.0	C
	PM	10/11/06	29.0	C
2 Great America Parkway & Mission College Boulevard*	AM	09/20/06	38.4	D
	PM	09/20/06	52.2	D
3 Bowers Avenue & US 101 SB Ramps*	AM	09/20/06	23.9	C
	PM	09/20/06	10.4	B
4 Bowers Avenue & Augustine Drive	AM	11/15/07	24.1	C
	PM	11/15/07	32.1	C
5 Bowers Avenue & Scott Boulevard*	AM	09/19/06	27.9	C
	PM	09/19/06	30.1	C
6 Bowers Avenue & Central Expressway*	AM	09/18/07	51.5	D
	PM	09/26/06	53.3	D
7 Bowers Avenue & Walsh Avenue/Kifer Road	AM	09/18/07	17.7	B
	PM	09/18/07	20.3	C
8 Bowers Avenue & Monroe Street	AM	09/13/07	29.1	C
	PM	09/12/07	31.8	C
9 Oakmead Parkway & Central Expressway*	AM	09/18/07	21.4	C
	PM	09/26/06	28.5	C
10 Scott Boulevard & Central Expressway*	AM	09/13/07	48.2	D
	PM	09/19/06	37.7	D
11 Lafayette Street & Central Expressway*	AM	01/24/08	53.4	D
	PM	09/19/06	52.5	D
12 De La Cruz Boulevard & Central Expressway*	AM	02/12/08	46.2	D
	PM	09/19/06	81.6	F
13 Lick Mill Boulevard & Montague Expressway	AM	01/29/08	25.3	C
	PM	01/29/08	20.5	C
14 De La Cruz Boulevard/Agnew Road & Montague Expressway*	AM	09/18/07	40.0	D
	PM	09/14/06	38.9	D
15 Mission College Boulevard & Montague Expressway*	AM	09/13/07	55.5	E
	PM	09/19/06	37.3	D
16 San Tomas Expressway & Scott Boulevard*	AM	10/02/07	32.7	C
	PM	09/19/06	45.3	D
17 San Tomas Expressway & Walsh Avenue	AM	09/13/07	29.6	C
	PM	09/13/07	41.2	D
18 San Tomas Expressway & Monroe Street*	AM	09/13/07	40.4	D
	PM	10/10/06	40.6	D
19 San Tomas Expressway & Cabrillo Avenue	AM	05/01/07	23.7	C
	PM	05/01/07	22.2	C
20 San Tomas Expressway & El Camino Real*	AM	02/12/08	56.6	E
	PM	09/20/06	65.6	E
21 San Tomas Expressway & Benton Street	AM	01/22/08	59.9	E
	PM	01/22/08	31.8	C



**Table 5 (Continued)**  
**Existing Intersection Levels of Service**

Study Intersection	Peak Hour	Count Date	Existing	
			Avg. Del.	LOS
<b><u>Santa Clara Intersections (Continued)</u></b>				
22 San Tomas Expressway & Homestead Road*	AM	01/22/08	84.0	F
	PM	09/20/06	69.7	E
23 Kiely Boulevard & Homestead Road	AM	01/23/08	27.7	C
	PM	01/23/08	29.8	C
24 San Tomas Expressway & Forbes Avenue	AM	01/23/08	17.3	B
	PM	01/23/08	12.5	B
25 San Tomas Expressway & Pruneridge Avenue	AM	01/23/08	45.7	D
	PM	01/23/08	42.1	D
26 San Tomas Expressway & Saratoga Avenue*	AM	05/08/07	57.7	E
	PM	09/20/06	65.7	E
27 San Tomas Expressway & Stevens Creek Boulevard*	AM	09/20/07	50.3	D
	PM	10/12/06	95.9	F
28 Saratoga Avenue & Pruneridge Avenue	AM	01/23/08	19.9	B
	PM	01/23/08	20.7	C
29 Winchester Boulevard & Pruneridge Avenue/Hedding Street	AM	01/23/08	21.7	C
	PM	01/23/08	25.3	C
30 Winchester Boulevard & Newhall Street	AM	01/23/08	23.6	C
	PM	01/23/08	18.6	B
31 Saratoga Avenue & Newhall Street/Scott Boulevard	AM	01/23/08	25.3	C
	PM	01/23/08	23.8	C
32 Scott Boulevard & Homestead Road	AM	01/22/08	21.1	C
	PM	01/22/08	24.4	C
33 Scott Boulevard & Benton Street	AM	01/22/08	18.5	B
	PM	01/22/08	13.8	B
34 Scott Boulevard & El Camino Real*	AM	09/19/06	33.9	C
	PM	09/19/06	37.5	D
35 Scott Boulevard & Monroe Street	AM	01/24/08	28.4	C
	PM	01/24/08	25.0	C
36 Scott Boulevard & Martin Avenue	AM	01/24/08	17.1	B
	PM	01/24/08	21.9	C
37 Scott Boulevard & Walsh Avenue	AM	01/24/08	22.6	C
	PM	01/24/08	26.3	C
38 Lafayette Street & Walsh Avenue	AM	01/24/08	16.1	B
	PM	01/24/08	20.1	C
39 Lafayette Street & Martin Avenue	AM	01/24/08	19.1	B
	PM	01/24/08	19.4	B
40 Lafayette Street & Reed Street	AM	01/29/08	8.1	A
	PM	01/29/08	16.4	B
41 Lafayette Street & El Camino Real*	AM	10/25/06	43.5	D
	PM	09/19/06	39.1	D
42 Monroe Street & El Camino Real*	AM	10/24/06	38.7	D
	PM	09/19/06	35.2	D

**Table 5 (Continued)**  
**Existing Intersection Levels of Service**

Study Intersection	Peak HourDa	Count te	Existing	
			Avg. Del.	LOS
<b><u>Santa Clara Intersections (Continued)</u></b>				
43 De La Cruz Boulevard & Reed Street	AM	01/29/08	10.9	B
	PM	10/03/07	13.3	B
44 De La Cruz Boulevard & Martin Avenue	AM	02/05/08	29.4	C
	PM	11/07/07	29.3	C
45 East Signalized Driveway & Walsh Avenue	AM	11/07/07	8.8	A
	PM	11/07/07	18.2	B
46 West Site Driveway & Walsh Avenue (unsignalized)	AM	11/07/07	10.7	B
	PM	11/07/07	9.3	A
47 Northwestern Parkway & Walsh Avenue (unsignalized)	AM	11/07/07	13.7	B
	PM	11/07/07	14.0	B
48 Northwestern Parkway & Condensa Street (unsignalized)	AM	01/29/08	9.0	A
	PM	01/29/08	8.9	A
49 San Tomas Expressway & Site Driveway (unsignalized)	AM	11/07/07	9.4	A
	PM	11/07/07	10.4	B
<b><u>San Jose Intersections</u></b>				
50 McCarthy Boulevard/O'Toole Avenue & Montague Expressway*	AM	10/10/07	39.2	D
	PM	09/13/06	71.1	E
51 Montague Expressway & Trimble Road*	AM	10/10/07	30.0	C
	PM	09/13/06	54.2	D
52 Montague Expressway & Plumeria Drive/River Oaks Parkway	AM	05/10/07	33.5	C
	PM	05/10/07	40.6	D
53 Zanker Road & Montague Expressway*	AM	10/11/07	48.1	D
	PM	09/14/06	52.6	D
54 North First Street & Montague Expressway*	AM	10/10/07	61.4	E
	PM	09/14/06	87.9	F
55 Saratoga Avenue & Stevens Creek Boulevard*	AM	09/20/07	34.1	C
	PM	10/05/06	38.2	D
56 Saratoga Avenue & Kiely Boulevard*	AM	10/02/07	40.0	D
	PM	10/05/06	42.1	D
57 Saratoga Avenue & I-280 NB Ramps*	AM	10/02/07	31.2	C
	PM	11/01/06	25.2	C
58 Saratoga Avenue & I-280 SB Ramps*	AM	10/02/07	32.4	C
	PM	10/03/06	44.8	D
59 San Tomas Expressway & Moorpark Avenue*	AM	10/09/07	46.1	D
	PM	09/20/06	41.4	D

\* Denotes CMP Intersection

Note: Signalized delay and LOS are average of all intersection movements.

Unsignalized delay and LOS are for the worst controlled lane group.

**Bold** indicates substandard level of service



**Table 6**  
**Existing Freeway Levels of Service**

Freeway	Segment	Direction	Peak Hour	Mixed-Flow Lanes					HOV Lane Traffic Volume				
				Ave. Speed/a	# of Lanes	Volume/a	Density	LOS	Ave. Speed/a	# of Lanes	Volume/a	Density	LOS
US 101	Oakland Rd. to I-880	NB	AM	7	3	2,750	131.0	F	32	1	1,950	50.9	F
US 101	I-880 to Old Bayshore Hwy	NB	PM	66	3	4,160	21.0	C	67	1	540	8.1	A
US 101	Old Bayshore Hwy to N First St	NB	AM	14	3	4,160	99.0	F	47	1	2,160	46.0	D
US 101	Old Bayshore Hwy to N First St	NB	AM	66	3	4,550	23.0	C	67	1	670	10.0	A
US 101	N First St to SR 87	NB	PM	18	3	4,700	87.0	F	15	1	1,430	95.3	F
US 101	N First St to SR 87	NB	PM	66	3	5,540	28.0	D	67	1	800	11.9	B
US 101	SR 87 to De La Cruz Blvd	NB	AM	25	3	5,480	73.1	F	19	1	1,620	85.3	F
US 101	SR 87 to De La Cruz Blvd	NB	PM	67	3	3,020	15.0	B	67	1	600	9.0	A
US 101	De La Cruz Blvd to Montague Expwy / San Tomas Expwy	NB	AM	14	3	4,300	100.0	F	21	1	1,680	80.0	F
US 101	De La Cruz Blvd to Montague Expwy / San Tomas Expwy	NB	PM	58	3	6,610	38.0	D	67	1	740	11.0	B
US 101	Montague Expwy / San Tomas Expwy to Bowers Ave/Great America Pkwy	NB	AM	39	3	6,200	53.0	E	62	1	2,170	35.0	D
US 101	Montague Expwy / San Tomas Expwy to Bowers Ave/Great America Pkwy	NB	AM	45	3	6,480	48.0	E	67	1	800	11.9	B
US 101	Bowers Ave/Great America Pkwy to Lawrence Expwy	NB	PM	62	3	6,510	35.0	D	66	1	1,450	22.0	C
US 101	Bowers Ave/Great America Pkwy to Lawrence Expwy	NB	PM	65	3	5,660	29.0	D	67	1	870	10.0	A
US 101	Lawrence Expwy to Fair Oaks Ave	NB	AM	61	3	6,590	36.0	D	66	1	1,650	25.0	C
US 101	Lawrence Expwy to Fair Oaks Ave	NB	PM	42	3	6,300	50.0	E	67	1	870	13.0	B
US 101	Fair Oaks Ave to Matilda Ave	NB	AM	51	3	6,580	43.0	D	66	1	1,580	23.0	C
US 101	Fair Oaks Ave to Matilda Ave	NB	PM	61	3	8,990	36.0	D	67	1	1,010	15.1	B
US 101	Matilda Ave to SR 237	NB	AM	32	3	5,950	62.0	F	52	1	2,180	41.9	D
US 101	Matilda Ave to SR 237	NB	PM	65	3	6,050	31.0	D	67	1	940	14.0	B
US 101	SR 237 to Moffett Blvd	NB	AM	45	3	6,480	48.0	E	55	1	2,200	40.0	D
US 101	SR 237 to Moffett Blvd	NB	PM	66	3	5,150	26.0	D	63	1	2,140	34.0	D
US 101	Moffett Blvd to SR 85	NB	AM	17	3	4,640	91.0	F	66	1	1,780	27.0	D
US 101	Moffett Blvd to SR 85	NB	PM	36	3	6,050	56.0	E	65	1	1,950	30.0	D
US 101	SR 85 to Moffett Blvd	NB	AM	18	3	4,750	88.0	F	25	1	1,830	73.2	F
US 101	SR 85 to Moffett Blvd	NB	PM	24	3	5,330	74.0	F	66	1	1,860	28.0	D
US 101	Moffett Blvd to SR 237	NB	AM	54	3	6,640	41.0	D	67	1	1,210	18.1	C
US 101	Moffett Blvd to SR 237	NB	PM	57	3	6,670	39.0	D	65	1	1,950	30.0	C
US 101	Matilda Ave to Fair Oaks Ave	NB	AM	57	3	6,670	39.0	D	66	1	1,650	25.0	C
US 101	Matilda Ave to Fair Oaks Ave	NB	PM	63	3	6,430	34.0	D	66	1	1,320	20.0	C
US 101	Fair Oaks Ave to Lawrence Expwy	NB	AM	66	3	4,950	25.0	C	66	1	1,320	20.0	C
US 101	Fair Oaks Ave to Lawrence Expwy	NB	PM	66	3	4,950	25.0	C	66	1	1,450	22.0	C
US 101	Lawrence Expwy to Bowers Ave/Great America Pkwy	NB	AM	65	3	6,050	31.0	D	66	1	1,450	22.0	C
US 101	Lawrence Expwy to Bowers Ave/Great America Pkwy	NB	PM	61	3	6,580	43.0	D	67	1	1,070	16.0	B
US 101	Bowers Ave/Great America Pkwy to Montague Expwy/San Tomas Expwy	NB	AM	62	3	6,510	35.0	D	67	1	1,210	18.1	C
US 101	Bowers Ave/Great America Pkwy to Montague Expwy/San Tomas Expwy	NB	PM	20	3	4,920	82.0	F	66	1	1,780	27.0	D
US 101	Montague Expwy/San Tomas Expwy to De La Cruz Blvd	NB	AM	65	3	6,050	31.0	D	67	1	1,070	16.0	B
US 101	Montague Expwy/San Tomas Expwy to De La Cruz Blvd	NB	PM	9	3	3,290	121.9	F	39	1	2,070	53.1	E
US 101	De La Cruz Blvd to SR 87	NB	AM	66	3	4,550	23.0	C	67	1	870	13.0	B
US 101	De La Cruz Blvd to SR 87	NB	PM	10	3	3,480	116.0	F	32	1	1,950	60.9	F
US 101	SR 87 to Old Bayshore Hwy	NB	AM	68	3	5,960	27.0	D	67	1	740	11.0	B
US 101	SR 87 to Old Bayshore Hwy	NB	PM	13	3	3,980	102.1	F	50	1	2,200	44.0	D
US 101	Old Bayshore Hwy to N First St	NB	AM	66	3	4,360	22.0	C	67	1	600	9.0	A
US 101	Old Bayshore Hwy to N First St	NB	PM	28	3	5,630	67.0	F	64	1	2,110	33.0	A
US 101	N First St to Old Bayshore Hwy	NB	AM	67	3	2,910	14.0	B	67	1	270	4.0	A
US 101	N First St to Old Bayshore Hwy	NB	PM	23	3	5,240	76.9	F	52	1	2,180	41.9	D
US 101	SR 87 to Old Bayshore Hwy	NB	AM	67	3	3,420	17.0	B	67	1	670	10.0	A
US 101	SR 87 to Old Bayshore Hwy	NB	PM	11	3	3,630	110.0	F	29	1	1,890	65.2	F
US 101	Old Bayshore Hwy to I-880	NB	AM	67	3	3,220	16.0	B	67	1	270	4.0	A
US 101	Old Bayshore Hwy to I-880	NB	PM	11	3	3,700	112.1	F	33	1	1,980	60.0	F
US 101	I-880 to Oakland Rd	NB	AM	66	3	3,760	19.0	C	67	1	340	5.1	A
US 101	I-880 to Oakland Rd	NB	PM	13	3	4,100	105.1	F	36	1	2,020	56.1	E
SR 87	Skyport Dr to US 101	NB	AM	6	2	1,740	145.0	F	67	1	940	14.0	B
SR 87	US 101 to Skyport Dr	NB	PM	67	2	2,280	17.0	B	67	1	540	8.1	A
SR 87	US 101 to Skyport Dr	NB	AM	66	2	3,430	26.0	C	67	1	130	1.9	A
SR 87	US 101 to Skyport Dr	NB	PM	59	2	4,370	37.0	D	67	1	800	11.9	B

Source: Santa Clara Valley Transportation Authority Congestion Management Program Monitoring Study, 2006.

a/ Source: Santa Clara Valley Transportation Authority Congestion Management Program Monitoring Study, 2006.

### 3.

## Background Conditions

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This chapter describes background traffic conditions. Background conditions are defined as conditions just prior to completion of the proposed project. Traffic volumes for background conditions comprise volumes from the existing traffic counts plus traffic generated by approved developments in the vicinity of the site. This chapter describes the procedure used to determine background traffic volumes and the resulting traffic conditions.

### Background Roadway Network

There are no approved and fully funded roadway improvement projects in the study area. Thus, the roadway network under background conditions would be the same as the existing roadway network.

### Background Traffic Volumes

Background peak-hour traffic volumes were estimated by adding to existing volumes the estimated traffic from approved, but not yet constructed, developments. The added traffic from approved but not yet constructed developments was estimated using the City of Santa Clara's TRAFFIX network. Traffic generated by Phase 1 of the North San Jose Development Policy was also included in the background traffic volumes. At study intersections located in the City of San Jose, approved project trips also include the City of San Jose's Approved Trip Inventory (ATI) volumes. Background conditions also include the incremental traffic that would be generated by full occupancy of the existing partially vacant office and research and development space on the project site.

Table 7 presents the trip estimates for the existing buildings at full occupancy, the actual trips generated at the current building occupancy, and the net site-generated trips included in the background scenario. Background traffic volumes are shown on Figure 7. The list of approved but not yet constructed projects is included in Appendix B.



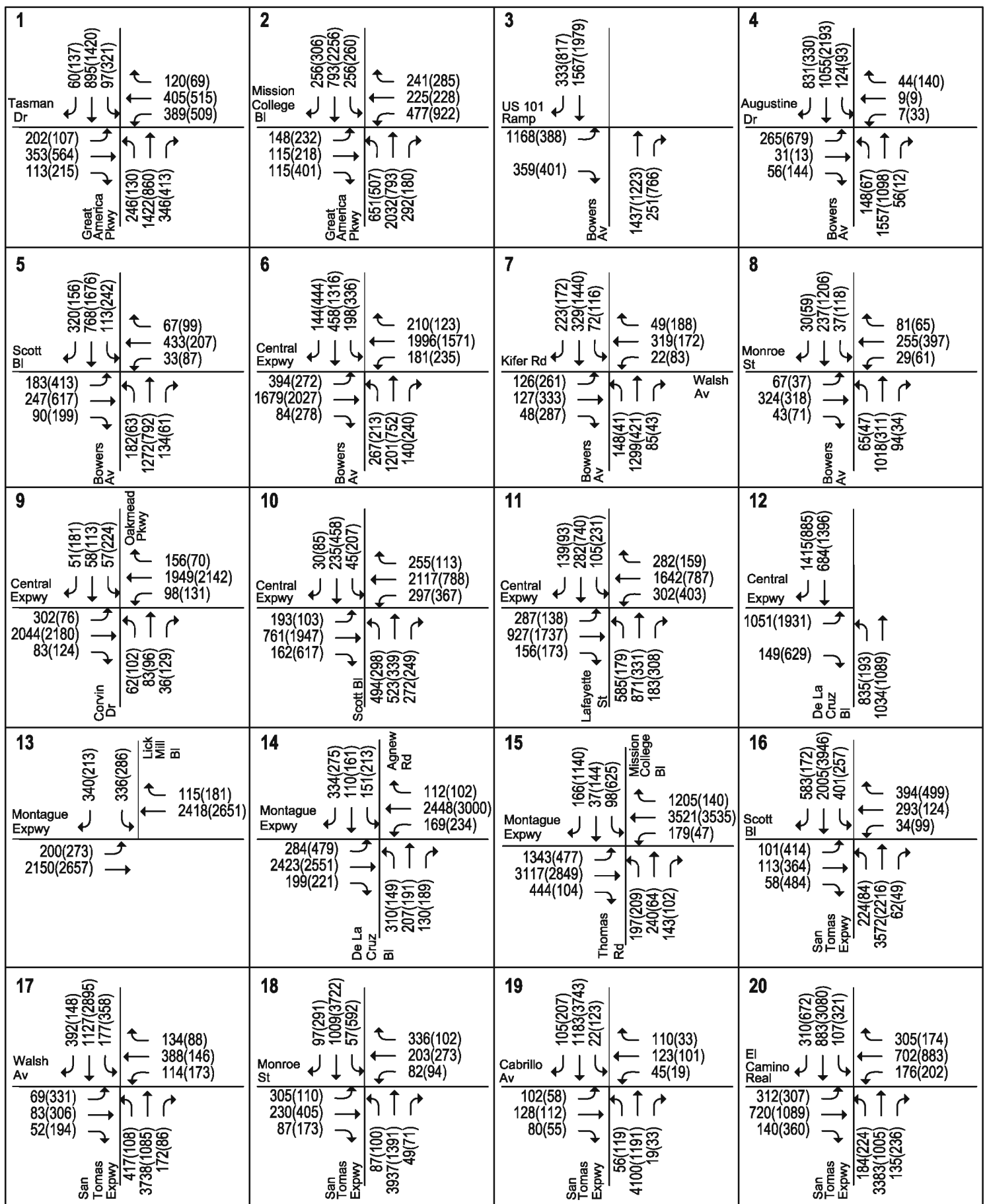


Figure 7

# BACKGROUND TRAFFIC VOLUMES

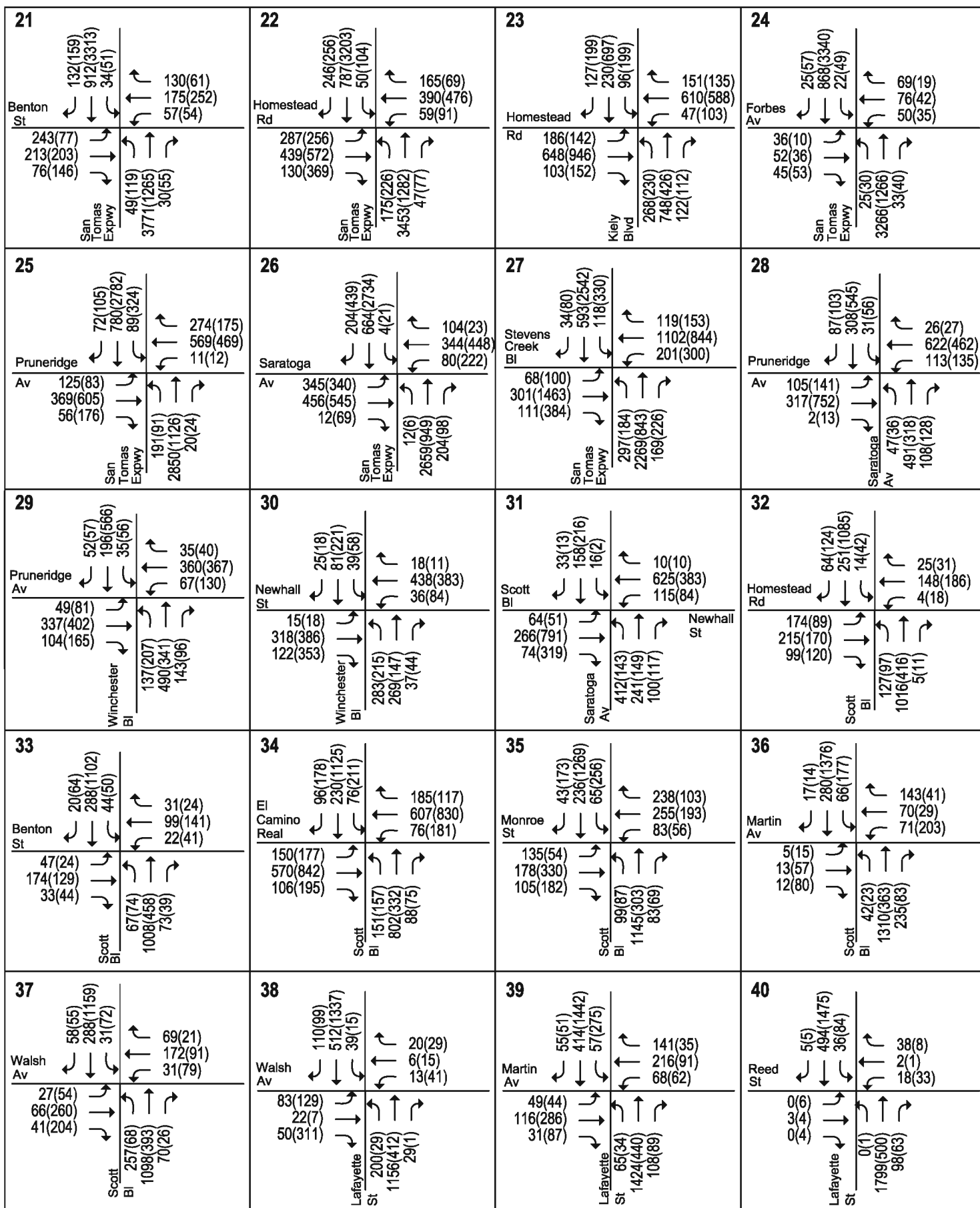


Figure 7

# BACKGROUND TRAFFIC VOLUMES

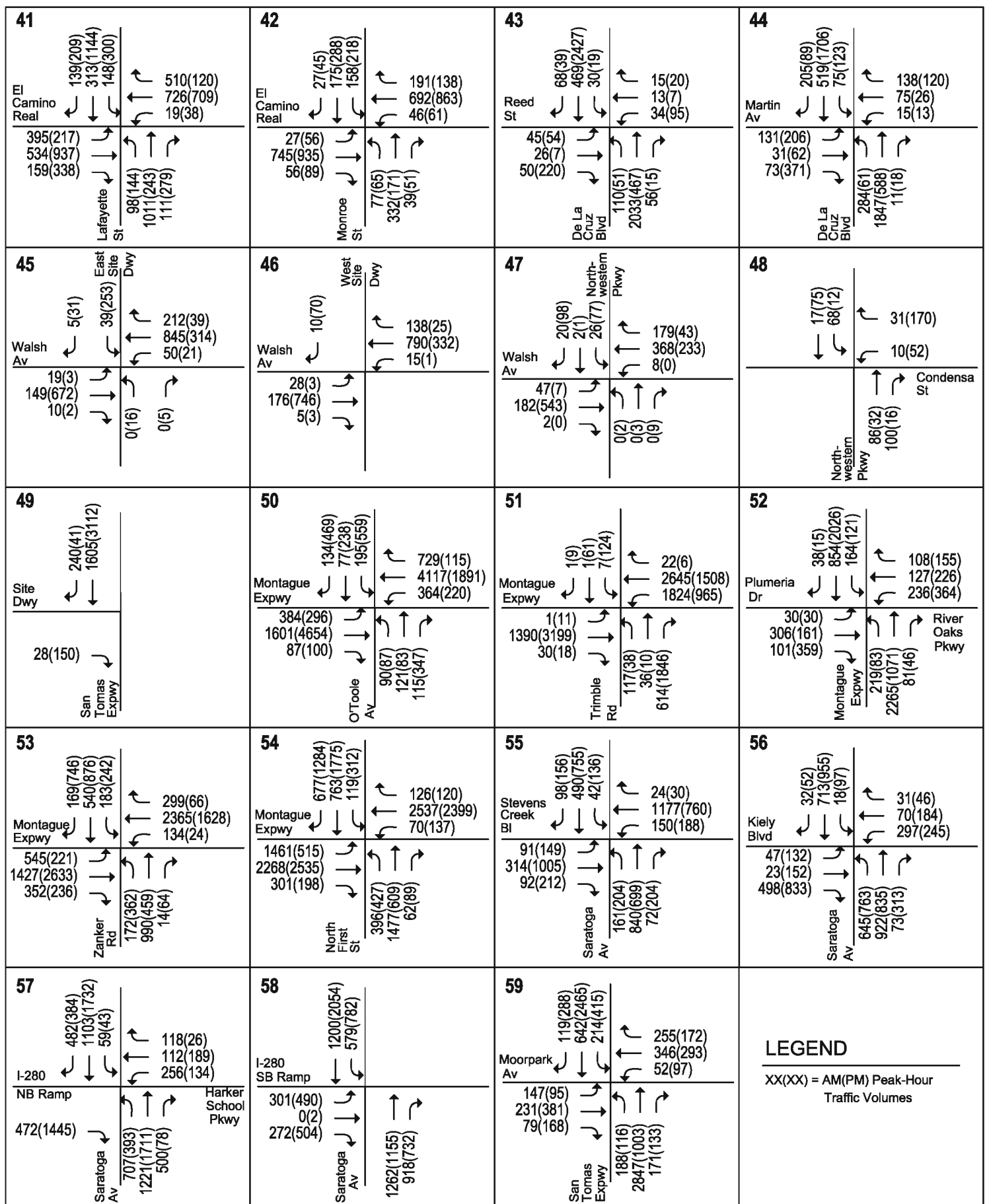


Figure 7

# BACKGROUND TRAFFIC VOLUMES

**Table 7**  
**Site Trip Estimates at Full Occupancy**

Land Use	Size	Daily		AM Peak Hour				PM Peak Hour			
		Rate <sup>1</sup>	Trips	Rate <sup>1</sup>	In	Out	Total	Rate <sup>1</sup>	In	Out	Total
Existing Office (Full Occupancy) <sup>2</sup>	509,862 s.f.	9.17	4,676	1.35	607	83	690	1.27	111	539	650
Existing R&D (Full Occupancy) <sup>2</sup>	181,352 s.f.	9.06	1,643	1.29	194	40	234	1.19	32	184	216
Existing Office/R&D (Actual Occupancy) <sup>3</sup>			(2,250)		(184)	(25)	(209)		(29)	(196)	(225)
<b>NET SITE-GENERATED TRIPS</b>			<b>4,069</b>		<b>617</b>	<b>98</b>	<b>715</b>		<b>114</b>	<b>527</b>	<b>641</b>

<sup>1</sup>Per 1,000 square feet.

<sup>2</sup>Source: ITE Trip Generation, Seventh Edition, 2003. Land Use (710) General Office Building, (760) Research and Development Center.

<sup>3</sup>Source: Driveway count conducted 11/7/2007.

## Background Intersection Levels of Service

The results of the intersection level of service analysis under existing and background conditions are summarized in Table 8. The results show that the following intersections would operate at unacceptable levels of service:

De La Cruz Boulevard and Central Expressway (CMP)	PM Peak Hour
San Tomas Expressway and Benton Street (Santa Clara)	AM Peak Hour
San Tomas Expressway and Homestead Road (CMP)	AM and PM Peak Hours
San Tomas Expressway and Saratoga Avenue (CMP)	PM Peak Hour
San Tomas Expressway and Stevens Creek Boulevard (CMP)	PM Peak Hour
McCarthy Blvd/O'Toole Av and Montague Expwy (San Jose and CMP)	PM Peak Hour
Montague Expressway and Trimble Road (San Jose and CMP)	PM Peak Hour
Zanker Road and Montague Expressway (San Jose and CMP)	AM and PM Peak Hours
North First Street and Montague Expressway (San Jose and CMP)	AM and PM Peak Hours
San Tomas Expressway and Moorpark Avenue (San Jose)	AM Peak Hour

All of the other study signalized intersections would operate at an acceptable level of service under background conditions. The level of service calculation sheets are included in Appendix D.

The unsignalized study intersections would continue to operate well under background conditions at LOS C or better.





**Table 8**  
**Background Intersection Levels of Service**

Study Intersection	Peak Hour	Existing		Background	
		Avg. Del.	LOS	Avg. Del.	LOS
<b><u>Santa Clara Intersections</u></b>					
1 Great America Parkway & Tasman Drive*	AM	26.0	C	25.6	C
	PM	29.0	C	29.5	C
2 Great America Parkway & Mission College Boulevard*	AM	38.4	D	41.4	D
	PM	52.2	D	78.7	E
3 Bowers Avenue & US 101 SB Ramps*	AM	23.9	C	25.2	C
	PM	10.4	B	10.4	B
4 Bowers Avenue & Augustine Drive	AM	24.1	C	24.7	C
	PM	32.1	C	51.6	D
5 Bowers Avenue & Scott Boulevard*	AM	27.9	C	30.7	C
	PM	30.1	C	32.6	C
6 Bowers Avenue & Central Expressway*	AM	51.5	D	57.7	E
	PM	53.3	D	58.2	E
7 Bowers Avenue & Walsh Avenue/Kifer Road	AM	17.7	B	16.7	B
	PM	20.3	C	20.3	C
8 Bowers Avenue & Monroe Street	AM	29.1	C	29.9	C
	PM	31.8	C	34.4	C
9 Oakmead Parkway & Central Expressway*	AM	21.4	C	23.8	C
	PM	28.5	C	29.8	C
10 Scott Boulevard & Central Expressway*	AM	48.2	D	48.1	D
	PM	37.7	D	39.4	D
11 Lafayette Street & Central Expressway*	AM	53.4	D	54.5	D
	PM	52.5	D	53.8	D
12 De La Cruz Boulevard & Central Expressway*	AM	46.2	D	48.1	D
	PM	81.6	F	86.0	F
13 Lick Mill Boulevard & Montague Expressway	AM	25.3	C	24.6	C
	PM	20.5	C	20.0	B
14 De La Cruz Boulevard/Agnew Road & Montague Expressway*	AM	40.0	D	44.0	D
	PM	38.9	D	40.5	D
15 Mission College Boulevard & Montague Expressway*	AM	55.5	E	76.0	E
	PM	37.3	D	43.5	D
16 San Tomas Expressway & Scott Boulevard*	AM	32.7	C	36.8	D
	PM	45.3	D	60.5	E
17 San Tomas Expressway & Walsh Avenue	AM	29.6	C	37.3	D
	PM	41.2	D	45.9	D
18 San Tomas Expressway & Monroe Street*	AM	40.4	D	46.9	D
	PM	40.6	D	43.4	D
19 San Tomas Expressway & Cabrillo Avenue	AM	23.7	C	25.6	C
	PM	22.2	C	25.8	C
20 San Tomas Expressway & El Camino Real*	AM	56.6	E	66.3	E
	PM	65.6	E	77.6	E
21 San Tomas Expressway & Benton Street	AM	59.9	E	87.6	F
	PM	31.8	C	46.6	D



**Table 8 (Continued)**  
**Background Intersection Levels of Service**

Study Intersection	Peak Hour	Existing		Background	
		Avg. Del.	LOS	Avg. Del.	LOS
<b><u>Santa Clara Intersections (Continued)</u></b>					
22 San Tomas Expressway & Homestead Road*	AM	84.0	F	112.0	F
	PM	69.7	E	98.0	F
23 Kiely Boulevard & Homestead Road	AM	27.7	C	29.0	C
	PM	29.8	C	32.5	C
24 San Tomas Expressway & Forbes Avenue	AM	17.3	B	19.4	B
	PM	12.5	B	14.5	B
25 San Tomas Expressway & Pruneridge Avenue	AM	45.7	D	56.0	E
	PM	42.1	D	49.8	D
26 San Tomas Expressway & Saratoga Avenue*	AM	57.7	E	72.8	E
	PM	65.7	E	81.9	F
27 San Tomas Expressway & Stevens Creek Boulevard*	AM	50.3	D	53.7	D
	PM	95.9	F	115.9	F
28 Saratoga Avenue & Pruneridge Avenue	AM	19.9	B	20.0	B
	PM	20.7	C	21.0	C
29 Winchester Boulevard & Pruneridge Avenue/Hedding Street	AM	21.7	C	23.2	C
	PM	25.3	C	30.0	C
30 Winchester Boulevard & Newhall Street	AM	23.6	C	24.2	C
	PM	18.6	B	20.4	C
31 Saratoga Avenue & Newhall Street/Scott Boulevard	AM	25.3	C	25.8	C
	PM	23.8	C	23.6	C
32 Scott Boulevard & Homestead Road	AM	21.1	C	21.0	C
	PM	24.4	C	23.4	C
33 Scott Boulevard & Benton Street	AM	18.5	B	18.5	B
	PM	13.8	B	14.0	B
34 Scott Boulevard & El Camino Real*	AM	33.9	C	34.0	C
	PM	37.5	D	39.1	D
35 Scott Boulevard & Monroe Street	AM	28.4	C	28.7	C
	PM	25.0	C	25.7	C
36 Scott Boulevard & Martin Avenue	AM	17.1	B	17.1	B
	PM	21.9	C	21.9	C
37 Scott Boulevard & Walsh Avenue	AM	22.6	C	22.9	C
	PM	26.3	C	27.5	C
38 Lafayette Street & Walsh Avenue	AM	16.1	B	16.2	B
	PM	20.1	C	20.9	C
39 Lafayette Street & Martin Avenue	AM	19.1	B	19.3	B
	PM	19.4	B	19.5	B
40 Lafayette Street & Reed Street	AM	8.1	A	8.3	A
	PM	16.4	B	16.6	B
41 Lafayette Street & El Camino Real*	AM	43.5	D	46.3	D
	PM	39.1	D	41.5	D
42 Monroe Street & El Camino Real*	AM	38.7	D	38.6	D
	PM	35.2	D	36.5	D





**Table 8 (Continued)**  
**Background Intersection Levels of Service**

Study Intersection	Peak Hour	Existing		Background	
		Avg. Del.	LOS	Avg. Del.	LOS
<b><u>Santa Clara Intersections (Continued)</u></b>					
43 De La Cruz Boulevard & Reed Street	AM	10.9	B	11.1	B
	PM	13.3	B	13.7	B
44 De La Cruz Boulevard & Martin Avenue	AM	29.4	C	29.2	C
	PM	29.3	C	29.2	C
45 East Signalized Driveway & Walsh Avenue	AM	8.8	A	9.4	A
	PM	18.2	B	23.0	C
46 West Site Driveway & Walsh Avenue (unsignalized)	AM	10.7	B	11.7	B
	PM	9.3	A	9.7	A
47 Northwestern Parkway & Walsh Avenue (unsignalized)	AM	13.7	B	15.2	C
	PM	14.0	B	15.6	C
48 Northwestern Parkway & Condensa Street (unsignalized)	AM	9.0	A	10.0	B
	PM	8.9	A	9.4	A
49 San Tomas Expressway & Site Driveway (unsignalized)	AM	9.4	A	9.7	A
	PM	10.4	B	12.4	B
<b><u>San Jose Intersections</u></b>					
50 McCarthy Boulevard/O'Toole Avenue & Montague Expressway*	AM	39.2	D	44.4	D
	PM	71.1	E	146.6	F
51 Montague Expressway & Trimble Road*	AM	30.0	C	32.2	C
	PM	54.2	D	127.5	F
52 Montague Expressway & Plumeria Drive/River Oaks Parkway	AM	33.5	C	44.5	D
	PM	40.6	D	52.5	D
53 Zanker Road & Montague Expressway*	AM	48.1	D	65.4	E
	PM	52.6	D	98.2	F
54 North First Street & Montague Expressway*	AM	61.4	E	212.8	F
	PM	87.9	F	273.9	F
55 Saratoga Avenue & Stevens Creek Boulevard*	AM	34.1	C	34.6	C
	PM	38.2	D	38.7	D
56 Saratoga Avenue & Kiely Boulevard*	AM	40.0	D	37.8	D
	PM	42.1	D	44.3	D
57 Saratoga Avenue & I-280 NB Ramps*	AM	31.2	C	30.6	C
	PM	25.2	C	24.5	C
58 Saratoga Avenue & I-280 SB Ramps*	AM	32.4	C	32.8	C
	PM	44.8	D	45.0	D
59 San Tomas Expressway & Moorpark Avenue*	AM	46.1	D	60.5	E
	PM	41.4	D	44.8	D

\* Denotes CMP Intersection

Note: Signalized delay and LOS are average of all intersection movements.

Unsignalized delay and LOS are for the worst controlled lane group.

**Bold** indicates substandard level of service



## 4.

# Project Conditions

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This chapter describes project traffic conditions, significant project impacts, and measures that are recommended to mitigate project impacts. Included are descriptions of the significance criteria that define an impact, estimates of project-generated traffic, identification of the impacts, and descriptions of the mitigation measures. Project conditions are represented by background traffic conditions with the addition of traffic generated by the project.

## Significant Impact Criteria

### *City of Santa Clara Definition of Significant Intersection LOS Impacts*

According to the City of Santa Clara level of service guidelines, a development is said to create a significant adverse impact on traffic conditions at City-controlled signalized intersection if for either peak hour:

1. The level of service at the intersection degrades from an acceptable LOS D or better under background conditions to an unacceptable LOS E or F under project conditions, or
2. The level of service at the intersection is an unacceptable LOS E or LOS F under background conditions and the addition of project trips causes the average critical delay to increase by four (4) or more seconds *and* volume-to-capacity ratio (V/C) to increase by 0.01 or more.

An exception to this rule applies when the addition of project traffic reduces the amount of average delay for critical movements (i.e., the change in average delay for critical movements is negative). In this case, the threshold of significance is an increase in the critical V/C value by 0.01 or more.

At County-controlled intersections the same definition of impact applies, except that the standard is LOS E. Therefore, LOS E is acceptable; LOS F is not acceptable.



A significant impact by City of Santa Clara standards is said to be satisfactorily mitigated when measures are implemented that would restore intersection level of service to an acceptable level or no worse than background conditions.

### City of San Jose Definition of Significant Intersection Impacts

The project is said to create a significant adverse impact on traffic conditions at a signalized intersection in the City of San Jose if for either peak hour:

1. The level of service at the intersection degrades from an acceptable LOS D or better under background conditions to an unacceptable LOS E or F under project conditions, or
2. The level of service at the intersection is an unacceptable LOS E or F under background conditions and the addition of project trips causes both the critical-movement delay at the intersection to increase by four (4) or more seconds *and* the volume-to-capacity ratio (V/C) to increase by one percent (0.01) or more, or
3. The level of service at a designated Protected Intersection is an unacceptable LOS E or F under background conditions and the addition of project trips causes the volume-to-capacity ratio (V/C) to increase by one-half percent (0.005) or more.

An exception to criterion #2 above applies when the addition of project traffic reduces the amount of average delay for critical movements (i.e., the change in average delay for critical movements is negative). In this case, the threshold of significance is an increase in the critical V/C value by 0.01 or more.

A significant impact by City of San Jose standards is said to be satisfactorily mitigated when measures are implemented that would restore intersection level of service to background conditions or better.

None of the study intersections are City of San Jose Protected Intersections.

### *CMP Definition of Significant Intersection LOS Impacts*

The definition of a significant impact at a CMP intersection is the same as for the City of Santa Clara, except that the CMP standard for acceptable level of service at a CMP intersection is LOS E or better. A significant impact by CMP standards is said to be satisfactorily mitigated when measures are implemented that would restore intersection conditions to an acceptable level or no worse than background conditions.

### *CMP Definition of Significant Freeway Segment Impacts*

The CMP defines an acceptable level of service for freeway segments as LOS E or better. A project is said to create a significant adverse impact on traffic conditions on a CMP freeway segment if for either peak hour:



1. The level of service on the freeway segment degrades from an acceptable LOS E or better under background conditions to an unacceptable LOS F under project conditions, or
2. The level of service on the freeway segment is an unacceptable LOS F under project conditions and the number of project trips on that segment constitutes at least one percent of capacity on that segment.

A significant impact by CMP standards is said to be satisfactorily mitigated when measures are implemented that would restore freeway conditions to better than background conditions.

## Transportation Network under Project Conditions

It is assumed in this analysis that the transportation network under project conditions would be the same as described under background conditions.

## Project Traffic Estimates

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In determining project trip generation, the magnitude of traffic entering and exiting the site is estimated for the AM and PM peak hours. As part of the project trip distribution step, an estimate is made of the directions to and from which the project trips would travel. In the project trip assignment step, the project trips are assigned to specific streets and intersections in the study area. These procedures are described further in the following sections.

### ***Trip Generation***

Through empirical research, data have been collected that correlate to common land uses their propensity for producing traffic. Thus, for the most common land uses there are standard trip generation rates that can be applied to help predict the future traffic increases that would result from a new development.

Hexagon has prepared project trip estimates based on trip generation rates obtained from ITE's *Trip Generation, Seventh Edition*, 2003. The traffic that would be generated by full occupancy of the existing office and research and development space was estimated in a similar manner and subtracted from the trips generated by the proposed project to determine the net project trips.

It is estimated that the proposed 1,950,000 square foot office development would generate a total of 13,137 daily vehicle trips with 2,019 trips in the AM peak hour and 2,263 trips in the PM peak hour. After applying the existing trip credits, the project would generate 6,818 daily trips, with 1,095 net trips (976 inbound and 119 outbound) occurring during the AM peak hour and 1,397 net trips (242 inbound and 1,155 outbound) occurring during the PM peak hour. The project trip generation estimates are presented in Table 9.

### ***Trip Distribution***

The trip distribution pattern for the proposed office development and existing vacant office building was estimated using the VTA travel demand forecast model. The project trip distribution pattern is shown graphically on Figure 8.



## Trip Assignment

The net peak-hour trips associated with the proposed project were added to the transportation network in accordance with the distribution pattern discussed above. Figure 9 shows the assignment of net project traffic on the local transportation network. A tabular summary of project traffic at each study intersection is contained in Appendix C.

**Table 9**  
**Project Trip Generation**

Land Use	Size	Daily		AM Peak Hour				PM Peak Hour			
		Rate <sup>1</sup>	Trips	Rate <sup>1</sup>	In	Out	Total	Rate <sup>1</sup>	In	Out	Total
Proposed Office	1,950,000 s.f.	6.74	13,137	1.04	1,777	242	2,019	1.16	385	1,878	2,263
Existing Office	(509,862) s.f.	9.17	(4,676)	1.35	(607)	(83)	(690)	1.27	(111)	(539)	(650)
Existing R&D	(181,352) s.f.	9.06	(1,643)	1.29	(194)	(40)	(234)	1.19	(32)	(184)	(216)
<b>NET PROJECT TRIPS</b>			<b>6,818</b>		<b>976</b>	<b>119</b>	<b>1,095</b>		<b>242</b>	<b>1,155</b>	<b>1,397</b>

<sup>1</sup>Per 1,000 square feet.

Source: ITE Trip Generation, Seventh Edition, 2003. Land Use (710) General Office Building, (760) Research and Development Center.

## Project Traffic Volumes

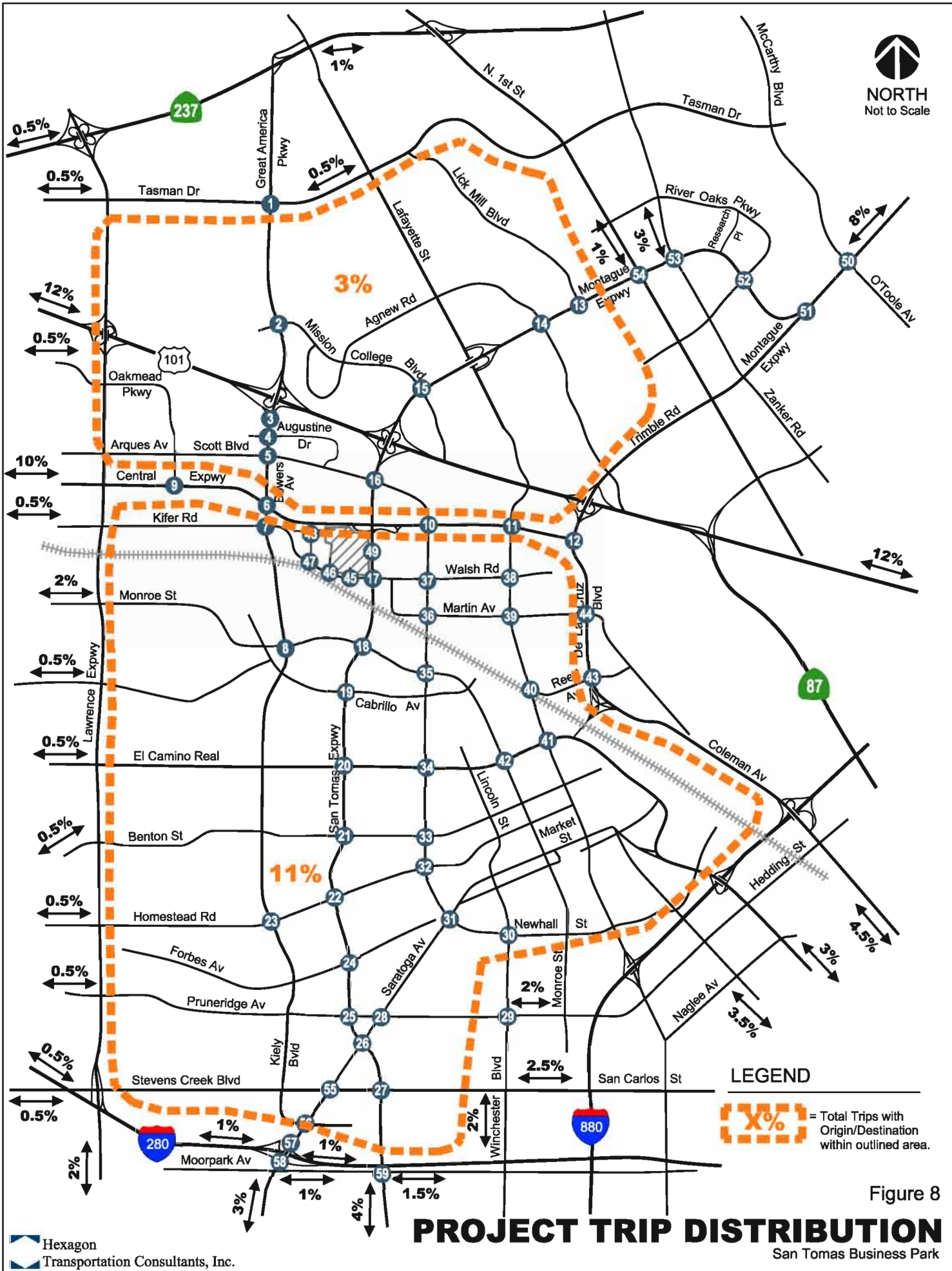
Project trips, as represented in the above project trip assignment, were added to background traffic volumes to obtain background plus project traffic volumes. Background traffic volumes plus project trips are typically referred to simply as *project traffic volumes*; this is contrasted with the term *project trips*, which is used to signify the traffic that is produced specifically by the project. The project traffic volumes are shown on Figure 10.

## Project Intersection Levels of Service

The results of the intersection level of service analysis under the project scenario are summarized in Table 10. The results show that the following intersections would experience significant impacts as a result of the project:

De La Cruz Boulevard and Central Expressway (CMP)	PM Peak Hour
San Tomas Expressway and El Camino Real (CMP)	PM Peak Hour
San Tomas Expressway and Benton Street (Santa Clara)	AM Peak Hour
San Tomas Expressway and Homestead Road (CMP)	AM and PM Peak Hours
San Tomas Expressway and Saratoga Avenue (CMP)	AM and PM Peak Hours
San Tomas Expressway and Stevens Creek Boulevard (CMP)	PM Peak Hour
McCarthy Blvd/O'Toole Av and Montague Expwy (San Jose and CMP)	PM Peak Hour
Montague Expressway and Trimble Road (San Jose and CMP)	PM Peak Hour
North First Street and Montague Expressway (San Jose and CMP)	AM and PM Peak Hours







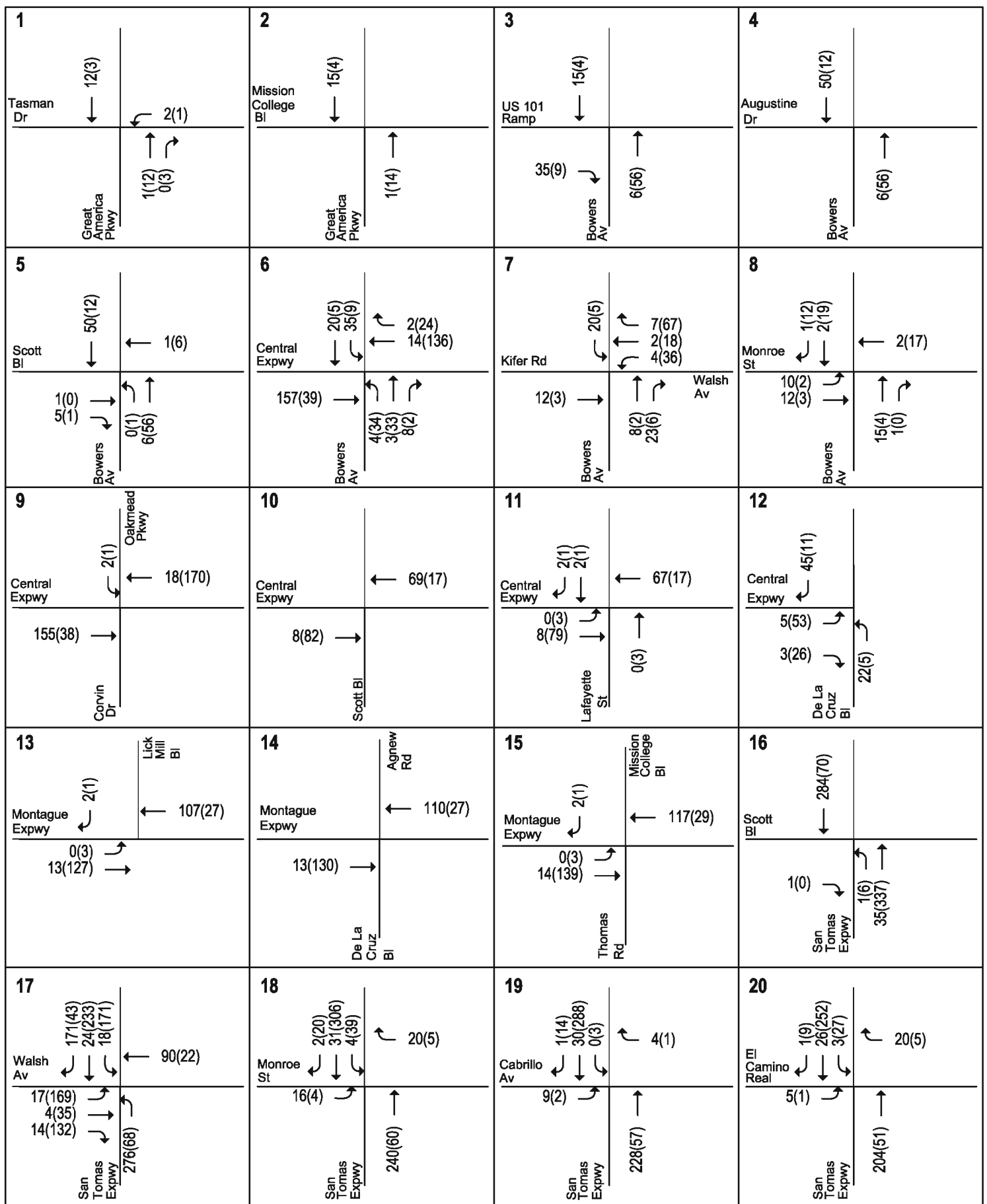


Figure 9

# PROJECT NET TRIP ASSIGNMENT

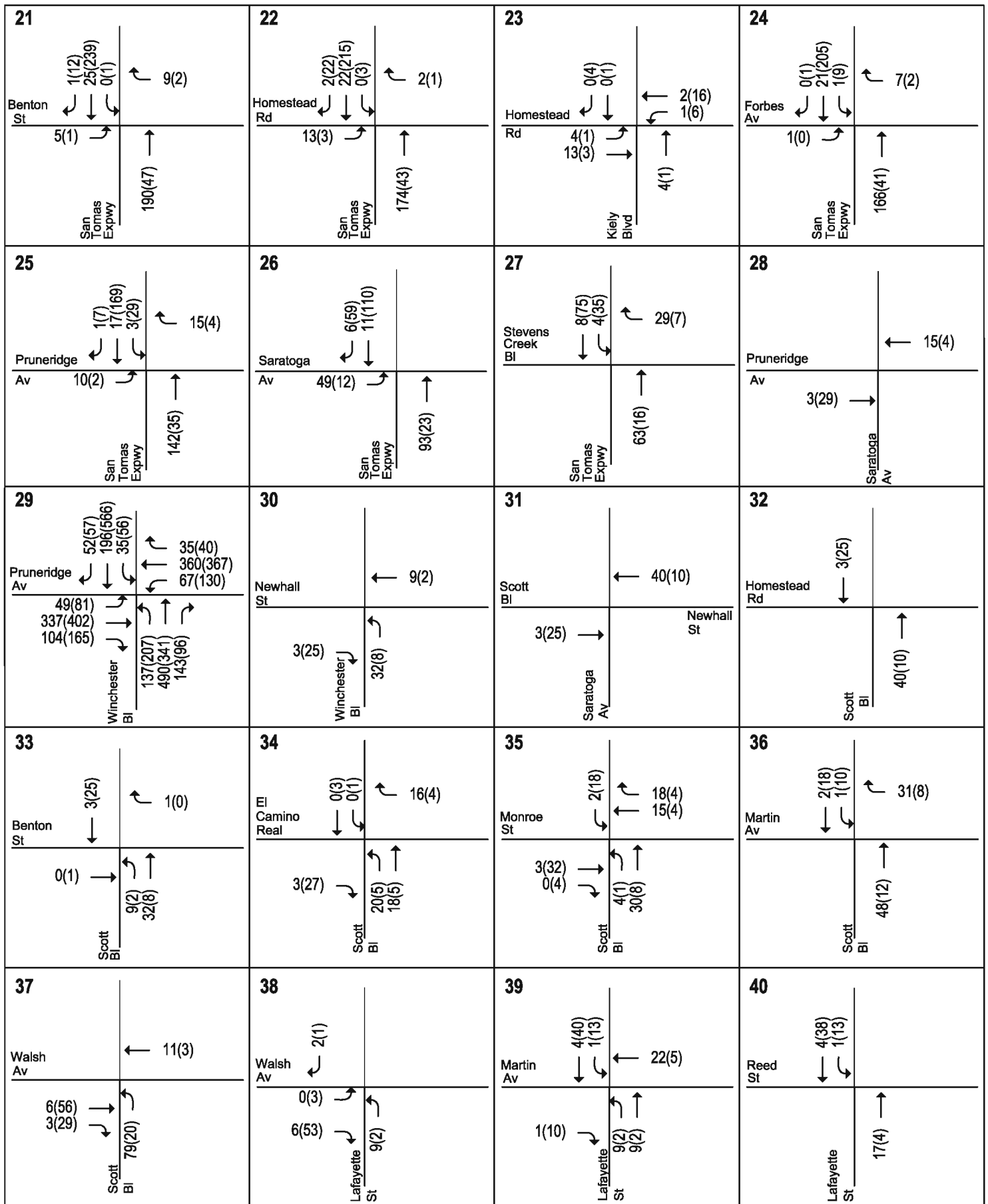


Figure 9

# PROJECT NET TRIP ASSIGNMENT



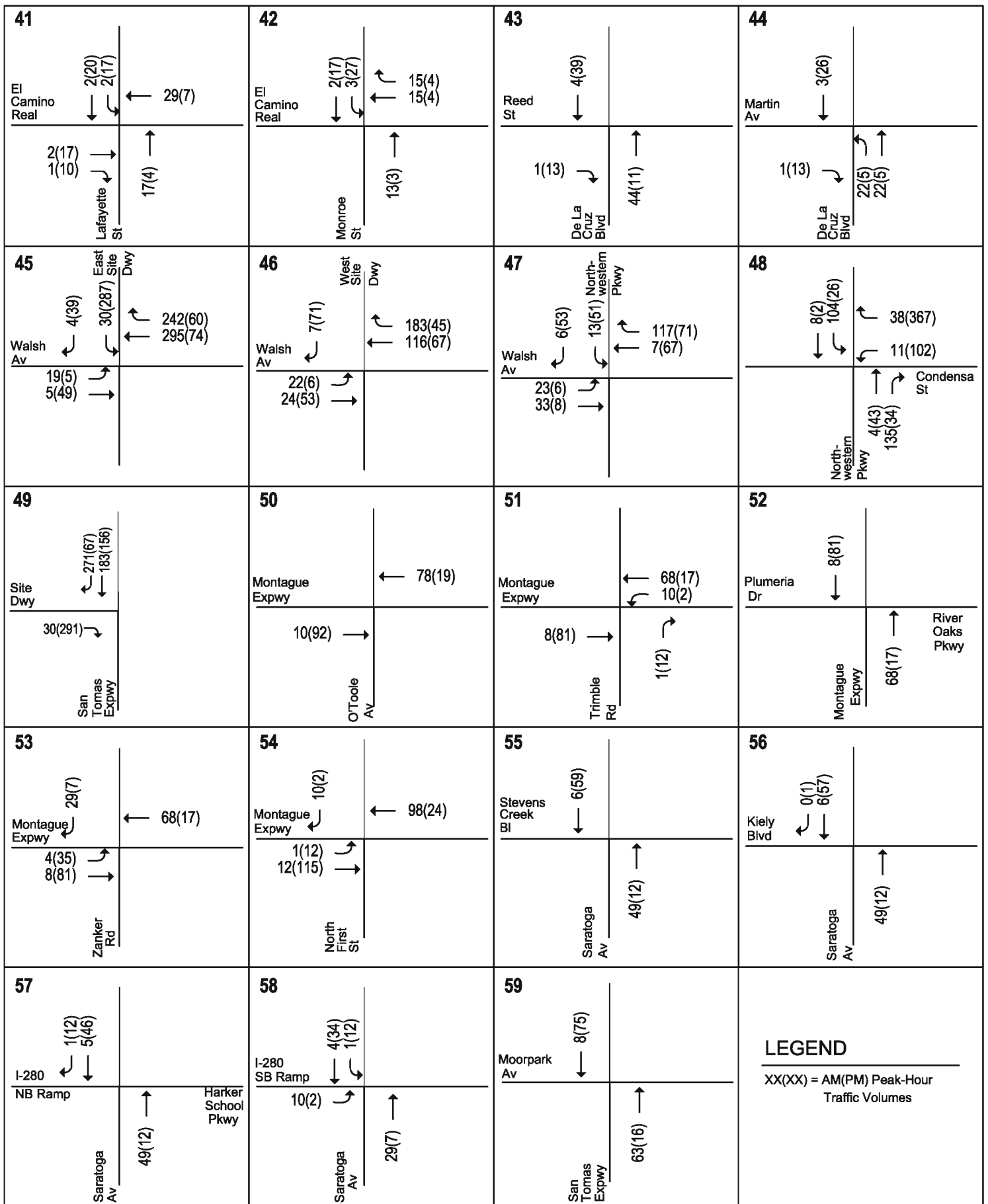


Figure 9

# PROJECT NET TRIP ASSIGNMENT

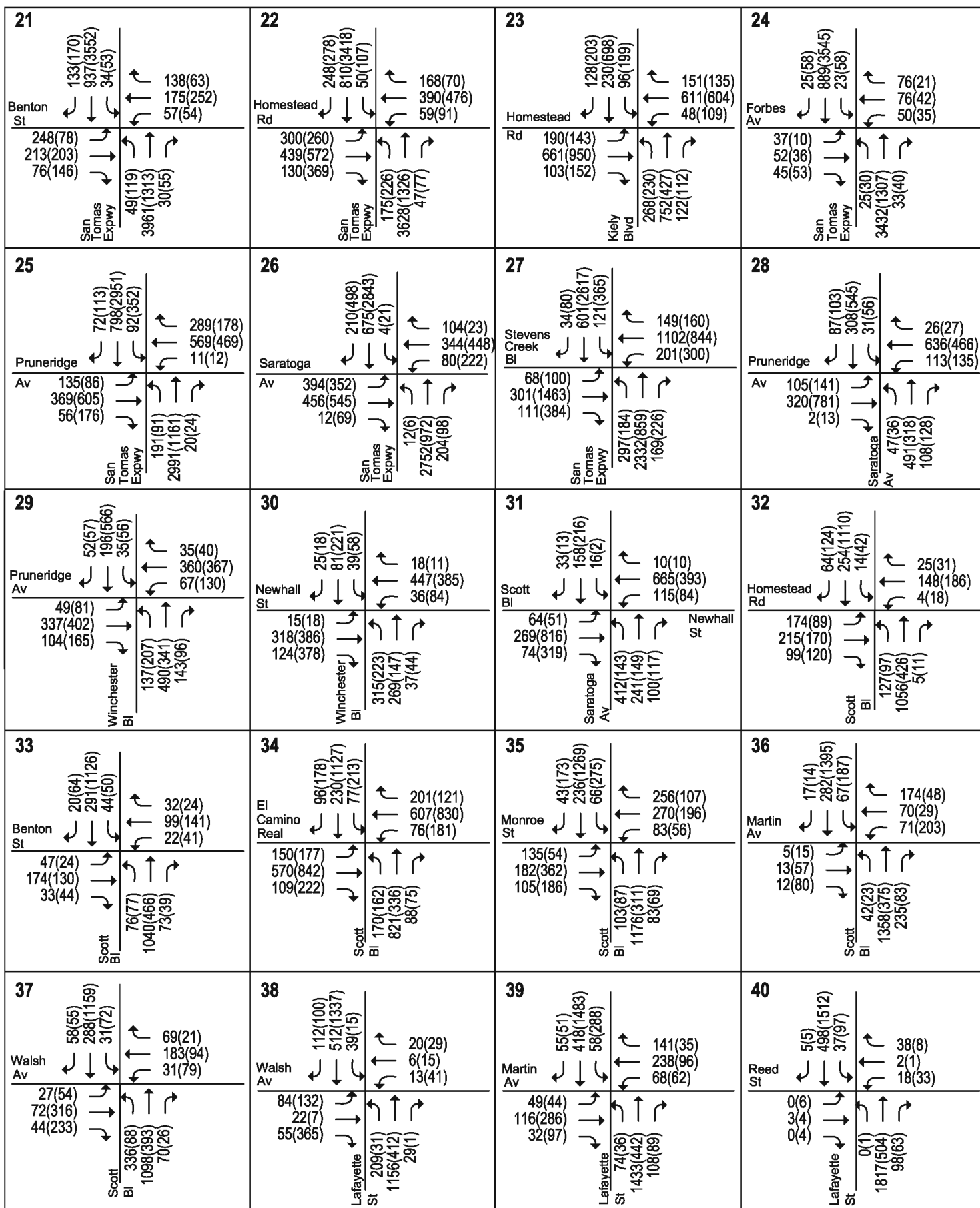


Figure 10

# PROJECT TRAFFIC VOLUMES

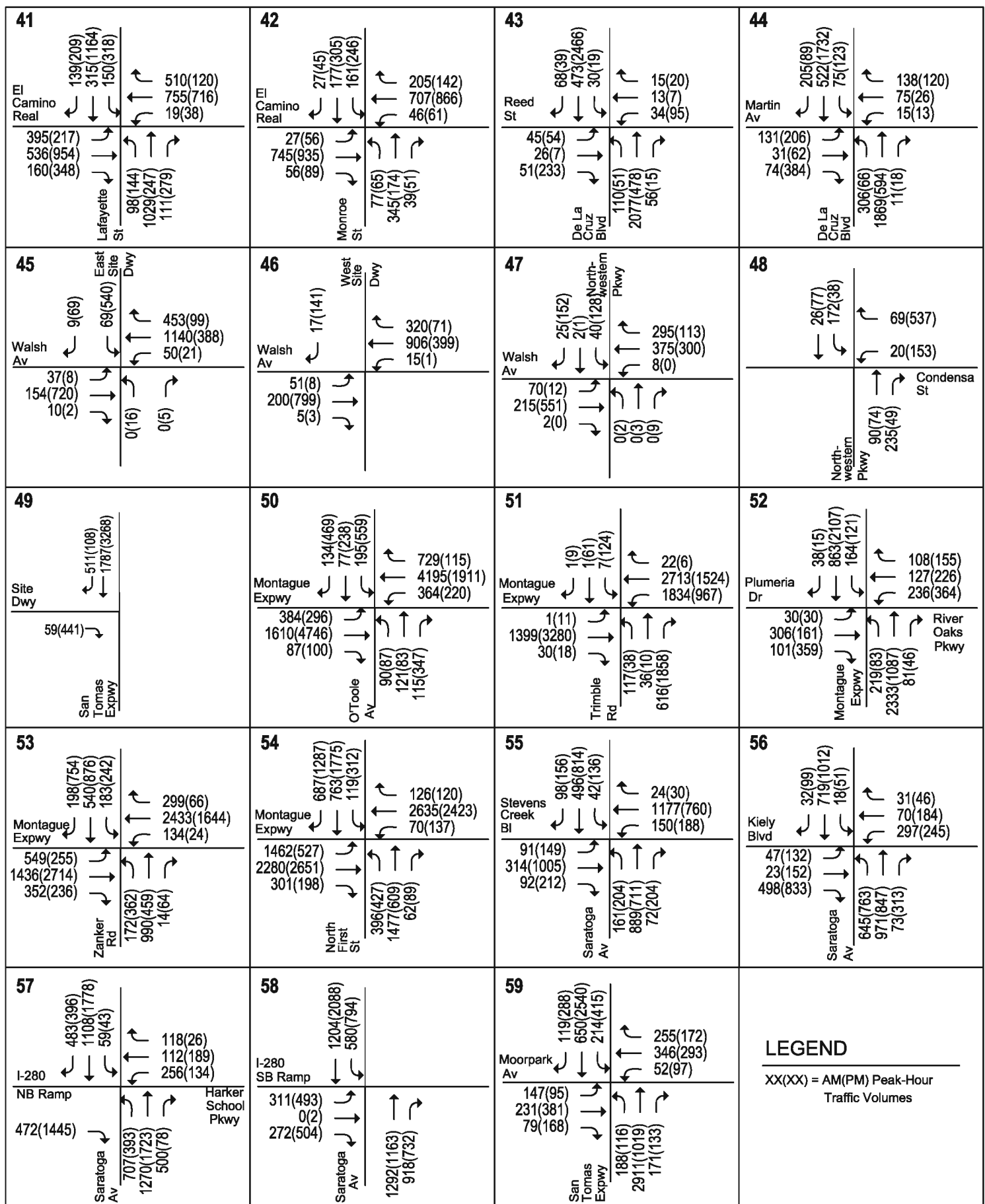


Figure 10

# PROJECT TRAFFIC VOLUMES

San Tomas Business Park

**Table 10**  
**Project Intersection Levels of Service**

Study Intersection	Peak Hour	Background		Project				Mitigated	
		Avg. Del.	LOS	Avg. Del.	LOS	Incr. In Crit. Del.	Incr. In Crit. V/C	Avg. Del.	LOS
<b>Santa Clara Intersections</b>									
1 Great America Parkway & Tasman Drive*	AM	25.6	C	25.6	C	0.0	0.001		
	PM	29.5	C	29.5	C	0.0	0.001		
2 Great America Parkway & Mission College Boulevard*	AM	41.4	D	41.4	D	0.0	0.003		
	PM	78.7	E	78.8	E	0.3	0.001		
3 Bowers Avenue & US 101 SB Ramps*	AM	25.2	C	25.1	C	0.1	0.003		
	PM	10.4	B	10.3	B	0.0	0.001		
4 Bowers Avenue & Augustine Drive	AM	24.7	C	24.8	C	0.0	0.000		
	PM	51.6	D	51.9	D	0.7	0.002		
5 Bowers Avenue & Scott Boulevard*	AM	30.7	C	30.7	C	0.0	0.001		
	PM	32.6	C	32.8	C	0.1	0.005		
6 Bowers Avenue & Central Expressway*	AM	57.7	E	59.2	E	2.4	0.015		
	PM	58.2	E	60.2	E	3.2	0.022		
7 Bowers Avenue & Walsh Avenue/Kifer Road	AM	16.7	B	17.0	B	0.2	0.017		
	PM	20.3	C	21.2	C	0.3	0.005		
8 Bowers Avenue & Monroe Street	AM	29.9	C	30.3	C	0.4	0.013		
	PM	34.4	C	34.8	C	0.6	0.018		
9 Oakmead Parkway & Central Expressway*	AM	23.8	C	23.9	C	0.1	0.005		
	PM	29.8	C	30.2	C	-3.1	0.004		
10 Scott Boulevard & Central Expressway*	AM	48.1	D	48.7	D	-0.1	0.002		
	PM	39.4	D	39.5	D	0.0	0.020		
11 Lafayette Street & Central Expressway*	AM	54.5	D	54.9	D	0.0	0.002		
	PM	53.8	D	54.3	D	-0.1	0.006		
12 De La Cruz Boulevard & Central Expressway*	AM	48.1	D	48.5	D	0.5	0.009	44.5	D
	PM	86.0	F	92.0	F	7.6	0.018	56.6	E
13 Lick Mill Boulevard & Montague Expressway	AM	24.6	C	24.5	C	-0.2	0.019		
	PM	20.0	B	19.9	B	0.0	0.006		
14 De La Cruz Boulevard/Agnew Road & Montague Expressway*	AM	44.0	D	44.1	D	-0.1	0.018		
	PM	40.5	D	40.5	D	0.0	0.005		
15 Mission College Boulevard & Montague Expressway*	AM	76.0	E	76.3	E	0.1	0.000		
	PM	43.5	D	43.8	D	0.4	0.005		
16 San Tomas Expressway & Scott Boulevard*	AM	36.8	D	36.4	D	0.1	0.005		
	PM	60.5	E	61.9	E	2.4	0.012		
17 San Tomas Expressway & Walsh Avenue	AM	37.3	D	43.7	D	6.7	0.041		
	PM	45.9	D	59.2	E	20.5	0.171		
18 San Tomas Expressway & Monroe Street*	AM	46.9	D	54.9	D	11.2	0.056		
	PM	43.4	D	45.4	D	3.3	0.050		
19 San Tomas Expressway & Cabrillo Avenue	AM	25.6	C	27.1	C	2.2	0.042		
	PM	25.8	C	26.5	C	1.1	0.047		
20 San Tomas Expressway & El Camino Real*	AM	66.3	E	74.2	E	14.3	0.050	58.0	E
	PM	77.6	E	84.7	F	10.4	0.042	71.1	E
21 San Tomas Expressway & Benton Street	AM	87.6	F	103.1	F	21.3	0.048	36.7	D
	PM	46.6	D	57.4	E	16.6	0.059	57.7	E
22 San Tomas Expressway & Homestead Road*	AM	112.0	F	127.9	F	22.4	0.050	54.2	D
	PM	98.0	F	112.5	F	22.6	0.055	54.6	D
23 Kiely Boulevard & Homestead Road	AM	29.0	C	29.1	C	0.1	0.004		
	PM	32.5	C	32.7	C	0.4	0.005		
24 San Tomas Expressway & Forbes Avenue	AM	19.4	B	21.5	C	2.8	0.040		
	PM	14.5	B	17.6	B	4.6	0.049		
25 San Tomas Expressway & Pruneridge Avenue	AM	56.0	E	62.8	E	9.4	0.041		
	PM	49.8	D	53.4	D	5.5	0.040		
26 San Tomas Expressway & Saratoga Avenue*	AM	72.8	E	85.4	F	19.4	0.052	61.9	E
	PM	81.9	F	89.7	F	13.8	0.034	74.3	E
27 San Tomas Expressway & Stevens Creek Boulevard*	AM	53.7	D	54.8	D	1.6	0.022	54.7	D
	PM	115.9	F	119.1	F	4.7	0.018	101.1	F
28 Saratoga Avenue & Pruneridge Avenue	AM	20.0	B	20.0	C	0.0	0.005		
	PM	21.0	C	21.1	C	0.1	0.010		
29 Winchester Boulevard & Pruneridge Avenue/Hedding Street	AM	23.2	C	23.3	C	0.0	0.008		
	PM	30.0	C	30.6	C	0.9	0.017		
30 Winchester Boulevard & Newhall Street	AM	24.2	C	24.2	C	0.0	0.015		
	PM	20.4	C	20.6	C	0.4	0.018		



**Table 10 (Continued)**  
**Project Intersection Levels of Service**

Study Intersection	Peak Hour	Background		Project				Mitigated	
		Avg. Del.	LOS	Avg. Del.	LOS	Incr. In Crit. Del.	Incr. In Crit. V/C	Avg. Del.	LOS
<b>Santa Clara Intersections (Continued)</b>									
31 Saratoga Avenue & Newhall Street/Scott Boulevard	AM	25.8	C	25.9	C	0.3	0.013		
	PM	23.6	C	23.6	C	-0.1	0.008		
32 Scott Boulevard & Homestead Road	AM	21.0	C	20.8	C	-0.2	0.012		
	PM	23.4	C	23.2	C	-0.2	0.007		
33 Scott Boulevard & Benton Street	AM	18.5	B	18.4	B	-0.1	0.010		
	PM	14.0	B	14.1	B	0.0	0.010		
34 Scott Boulevard & El Camino Real*	AM	34.0	C	34.1	C	-0.1	0.006		
	PM	39.1	D	39.2	D	0.2	0.004		
35 Scott Boulevard & Monroe Street	AM	28.7	C	29.3	C	0.3	0.014		
	PM	25.7	C	26.2	C	0.8	0.009		
36 Scott Boulevard & Martin Avenue	AM	17.1	B	17.5	B	0.0	0.010		
	PM	21.9	C	22.0	C	0.0	0.006		
37 Scott Boulevard & Walsh Avenue	AM	22.9	C	25.6	C	15.1	0.070		
	PM	27.5	C	29.5	C	2.6	0.039		
38 Lafayette Street & Walsh Avenue	AM	16.2	B	16.5	B	0.1	0.001		
	PM	20.9	C	22.5	C	2.3	0.035		
39 Lafayette Street & Martin Avenue	AM	19.3	B	19.8	B	0.6	0.010		
	PM	19.5	B	19.7	B	0.3	0.017		
40 Lafayette Street & Reed Street	AM	8.3	A	8.4	A	0.1	0.006		
	PM	16.6	B	16.8	B	0.2	0.012		
41 Lafayette Street & El Camino Real*	AM	46.3	D	46.7	D	0.5	0.005		
	PM	41.5	D	41.7	D	0.2	0.007		
42 Monroe Street & El Camino Real*	AM	38.6	D	38.7	D	0.3	0.016		
	PM	36.5	D	37.3	D	1.0	0.021		
43 De La Cruz Boulevard & Reed Street	AM	11.1	B	11.2	B	0.2	0.010		
	PM	13.7	B	14.2	B	0.6	0.017		
44 De La Cruz Boulevard & Martin Avenue	AM	29.2	C	29.3	C	-0.1	0.004		
	PM	29.2	C	29.0	C	-1.7	-0.002		
45 East Signalized Driveway & Walsh Avenue	AM	9.4	A	10.7	B	2.0	0.184		
	PM	23.0	C	27.3	C	4.9	0.105		
46 West Site Driveway & Walsh Avenue (unsignalized)	AM	11.7	B	13.5	B	NA	NA		
	PM	9.7	A	10.7	B	NA	NA		
47 Northwestern Parkway & Walsh Avenue (unsignalized)	AM	15.2	C	18.4	C	NA	NA		
	PM	15.6	C	21.7	C	NA	NA		
48 Northwestern Parkway & Condensa Street (unsignalized)	AM	10.0	B	12.5	B	NA	NA		
	PM	9.4	A	12.8	B	NA	NA		
49 San Tomas Expressway & Site Driveway (unsignalized)	AM	9.7	A	10.1	B	NA	NA		
	PM	12.4	B	23.8	C	NA	NA		
<b>San Jose Intersections</b>									
50 McCarthy Boulevard/O'Toole Avenue & Montague Expressway*	AM	44.4	D	44.8	D	0.8	0.011	27.9	C
	PM	146.6	F	152.1	F	8.2	0.016	29.4	C
51 Montague Expressway & Trimble Road*	AM	32.2	C	32.2	C	0.2	0.004	24.4	C
	PM	127.5	F	132.9	F	6.9	0.018	35.4	D
52 Montague Expressway & Plumeria Drive/River Oaks Parkway	AM	44.5	D	44.2	D	-0.4	0.011		
	PM	52.5	D	52.2	D	-0.3	0.014		
53 Zanker Road & Montague Expressway*	AM	65.4	E	66.7	E	2.3	0.012		
	PM	98.2	F	97.9	F	-2.3	0.007		
54 North First Street & Montague Expressway*	AM	212.8	F	220.5	F	11.0	0.024	172.0	F
	PM	273.9	F	283.2	F	3.8	0.009	246.7	F
55 Saratoga Avenue & Stevens Creek Boulevard*	AM	34.6	C	34.7	C	0.3	0.014		
	PM	38.7	D	38.9	D	0.3	0.017		
56 Saratoga Avenue & Kiely Boulevard*	AM	37.8	D	37.7	D	0.1	0.001		
	PM	44.3	D	44.7	D	0.8	0.011		
57 Saratoga Avenue & I-280 NB Ramps*	AM	30.6	C	30.4	C	0.0	0.001		
	PM	24.5	C	24.3	C	-0.3	0.009		
58 Saratoga Avenue & I-280 SB Ramps*	AM	32.8	C	33.1	C	0.5	0.004		
	PM	45.0	D	45.4	D	1.3	0.005		
59 San Tomas Expressway & Moorpark Avenue*	AM	60.5	E	63.1	E	3.6	0.015		
	PM	44.8	D	45.5	D	-0.1	0.003		
* Denotes CMP Intersection									
Note: Signalized delay and LOS are average of all intersection movements.									
Unsignalized delay and LOS are for the worst controlled lane group.									
<b>Bold</b> indicates substandard level of service									
<b></b> indicates a significant impact									



## Project Intersection Level of Service Impacts and Mitigations

The level of service results under project conditions show that the project would create significant impacts at the following intersections.

### De La Cruz Boulevard and Central Expressway\*

**Impact:** This CMP intersection is expected to operate at an unacceptable level of service (LOS F) during the PM peak hour under background conditions. The proposed project would cause the intersection's average critical delay to increase by 7.6 seconds and the volume-to-capacity ratio (V/C) to increase by 0.018. This constitutes a significant impact to the intersection under the CMP definition.

**Mitigation:** The City of Santa Clara has a policy to collect a fee of \$1 per square foot of the project size for projects that have a significant impact on County expressways. The impact fee for this project would be given to Santa Clara County. The County may or may not elect to use these funds for improvements to this intersection. One possible improvement to this intersection would be to convert the HOV lane on eastbound Central Expressway to a mixed-flow lane. The Comprehensive County Expressway Planning Study states that the Measure B HOV lane widening on Central Expressway between San Tomas and De La Cruz Boulevard will be converted to a mixed-flow lane if the HOV lane performs poorly after a three- to five-year period. With this modification, the intersection would operate at acceptable levels (LOS E).

### San Tomas Expressway and El Camino Real\*

**Impact:** This CMP intersection is expected to operate at an acceptable level of service (LOS E) during both the AM and PM peak hours under background conditions. During the PM peak hour, the proposed project would cause the intersection's level of service to degrade to an unacceptable level (LOS F). This constitutes a significant impact to the intersection under the CMP definition.

**Mitigation:** This intersection's level of service could be improved by the addition of a second left-turn lane on both the east and west approaches. This improvement was identified as a Tier 1A priority in the Comprehensive County Expressway Planning Study. With this improvement, the intersection would operate at an acceptable LOS E.

### San Tomas Expressway and Benton Street

**Impact:** This intersection is expected to operate at an unacceptable level of service (LOS F) during the AM peak hour period under background conditions. The proposed project would cause the intersection's average critical delay to increase by 21.3 seconds and the volume-to-capacity ratio (V/C) to increase by 0.048. This constitutes a significant impact to the intersection under the City of Santa Clara's definition.



**Mitigation:** This intersection's level of service could be improved to an acceptable level (LOS D) by adding a fourth through lane to the south approach. This improvement was identified as a Tier 1A priority in the Comprehensive County Expressway Planning Study.

#### San Tomas Expressway and Homestead Road\*

**Impact:** This CMP intersection is expected to operate at an unacceptable level of service (LOS F) during both the AM and PM peak hours under background conditions. The proposed project would cause the intersection's average critical delay to increase by 22.4 seconds and 22.6 seconds and the volume-to-capacity ratio (V/C) to increase by 0.050 and 0.055 during the AM and PM peak hours, respectively. This constitutes a significant impact to the intersection under the CMP definition.

**Mitigation:** The significant impact at this intersection could be satisfactorily mitigated by adding a fourth through lane to both the north and south approaches. This improvement was identified as a Tier 1A priority in the Comprehensive County Expressway Planning Study. With the improvement, the intersection would operate at acceptable levels (LOS D).

#### San Tomas Expressway and Saratoga Avenue\*

**Impact:** This CMP intersection is expected to operate at an acceptable level of service (LOS E) during the AM peak hour, and the proposed project would cause the intersection's level of service to degrade to an unacceptable level (LOS F). During the PM peak hour under background conditions the intersection is expected to operate at an unacceptable level (LOS F). The proposed project would cause the intersection's average critical delay to increase by 13.8 seconds and the volume-to-capacity ratio (V/C) to increase by 0.034. This constitutes a significant impact to the intersection under the CMP definition.

**Mitigation:** This intersection's level of service could be improved by adding a second eastbound left-turn lane. The County plans to construct the additional left-turn lane with partial funding from the City of Santa Clara.

#### San Tomas Expressway and Stevens Creek Boulevard\*

**Impact:** This CMP intersection is expected to operate at an unacceptable level of service (LOS F) during the PM peak hour under background conditions. The proposed project would cause the intersection's average critical delay to increase by 4.7 seconds and the volume-to-capacity ratio (V/C) to increase by 0.018. This constitutes a significant impact to the intersection under the CMP definition.

**Mitigation:** The significant impact at this intersection could be satisfactorily mitigated by adding a fourth through lane to the north approach. This improvement was identified as a Tier 1A priority in the Comprehensive County Expressway Planning Study. With the improvement, the intersection would continue to operate at LOS F; however, the average delay would be less than that under background conditions.



## McCarthy Boulevard/O'Toole Avenue and Montague Expressway\*

**Impact:** This CMP intersection is expected to operate at an unacceptable level of service (LOS F) during the PM peak hour under background conditions. The proposed project would cause the intersection's average critical delay to increase by 8.2 seconds and the volume-to-capacity ratio (V/C) to increase by 0.016. This constitutes a significant impact to the intersection under the City of San Jose and CMP definitions.

**Mitigation:** The significant impact at this intersection could be satisfactorily mitigated by constructing a "square-loop" interchange to replace the at-grade intersection. The interchange would eliminate the conflicting movements at the intersection and allow for uninterrupted flow along Montague Expressway. The Comprehensive County Expressway Planning Study identified this improvement as a Tier 1B improvement. This improvement also is identified in the North San Jose Deficiency Plan. The improvement is expected to be funded by the collection of North San Jose traffic impact fees. The proposed project should pay a fair share contribution toward the cost of this improvement.

Rather than contributing to the planned ultimate improvement, the proposed project could construct an interim improvement that would allow the intersection to operate more efficiently. Construction of either of the following interim improvements would reduce the average vehicle delay to less than that under background conditions, satisfactorily mitigating the project's impact at this intersection. The first option would entail converting the southbound through lane to a shared through/left-turn lane, restriping the northbound approach to include a shared through/left-turn lane and an exclusive right-turn lane and converting to split-phase signal control on the north and south approaches. Because the vehicle traffic on the north leg is much greater than that on the south leg, and because there is no crosswalk on the east approach, split-phase control is the most efficient type of signal control at this intersection. The second option is to convert the HOV lane to mixed-flow on the eastbound approach. Currently, the HOV lane designation on eastbound Montague Expressway terminates immediately after O'Toole Avenue, where the HOV lane becomes a dedicated exit-only lane leading to southbound I-880. The modification would enable more efficient use of the intersection's existing capacity.

## Montague Expressway and Trimble Road\*

**Impact:** This CMP intersection is expected to operate at an unacceptable level of service (LOS F) during the PM peak hour under background conditions. The proposed project would cause the intersection's average critical delay to increase by 6.9 seconds and the volume-to-capacity ratio (V/C) to increase by 0.018. This constitutes a significant impact to the intersection under the City of San Jose and CMP definitions.

**Mitigation:** The significant impact at this intersection could be satisfactorily mitigated by the construction of the Trimble flyover. The flyover would replace the triple left-turn lanes from westbound Montague Expressway to southbound Trimble Road. The flyover project also includes other modifications to the intersection including the elimination of the driveway that currently forms the north leg. This improvement is identified in the





Comprehensive County Expressway Planning Study as a Tier 1B improvement. The flyover improvement also is identified in the North San Jose Deficiency Plan.

### North First Street and Montague Expressway\*

**Impact:** This CMP intersection is expected to operate at an unacceptable level of service (LOS F) during the AM and PM peak hour periods under background conditions. During the AM peak hour, the proposed project would cause the intersection's average critical delay to increase by 11.0 seconds and the volume-to-capacity ratio (V/C) to increase by 0.024. This constitutes a significant impact to the intersection under the City of San Jose and CMP definitions.

**Mitigation:** The significant impact at this intersection could be satisfactorily mitigated by adding a fourth through lane on westbound Montague Expressway. This improvement is planned as part of the Montague Expressway widening project identified as a Tier 1-A improvement by the Comprehensive County Expressway Planning Study. The improvement also is identified in the North San Jose Deficiency Plan and will be funded by the collection of North San Jose traffic impact fees. Although the intersection would continue to operate at LOS F, the recommended mitigation measure would reduce the average delay for vehicular traffic to better than that under background conditions.

## Freeway Segment Analysis

Traffic volumes on the study freeway segments under project conditions were estimated by adding project trips to the existing volumes obtained from the 2006 CMP Annual Monitoring Report. The results of the freeway analysis are summarized in Table 11. The results of the CMP freeway analysis show that the project would cause significant increases in traffic volumes (more than one percent of freeway capacity) on the following eight study freeway segments:

- US 101, northbound between Old Bayshore Highway and North First Street (AM Peak Hour)
- US 101, northbound between North First Street and SR 87 (AM Peak Hour)
- US 101, northbound between SR 87 and De La Cruz Boulevard (AM Peak Hour)
- US 101, southbound between Montague Expressway and De La Cruz Boulevard (PM Peak Hour)
- US 101, southbound between De La Cruz Boulevard and SR 87 (PM Peak Hour)
- US 101, southbound between SR 87 and North First Street (PM Peak Hour)
- US 101, southbound between North First Street and Old Bayshore Highway (PM Peak Hour)
- US 101, southbound between Old Bayshore Highway and I-880 (PM Peak Hour)

Mitigation of significant project impacts on freeway segments would require roadway widening to construct additional through lanes, thereby increasing freeway capacity. Since it is not feasible for an individual development project to bear responsibility for implementing such extensive transportation system improvements due to constraints in acquisition and cost of right-of-way, and no comprehensive project to add through lanes has been developed by Caltrans or VTA for individual projects to contribute to, the significant impacts on the directional freeway segments identified above must be considered significant and unavoidable.



## Other Transportation Issues

### ***Intersection Operations Analysis***

The operations analysis is based on vehicle queuing for high demand turning movements at intersections. Vehicle queues were estimated using a Poisson probability distribution, which estimates the probability of “n” vehicles for a vehicle movement using the following formula:

$$P(x=n) = \frac{\lambda^n e^{-\lambda}}{n!}$$

Where:

$P(x=n)$  = probability of “n” vehicles in queue per lane

$n$  = number of vehicles in the queue per lane

$\lambda$  = Average number of vehicles in the queue per lane (vehicle queue calculations are based on cycle length for signalized intersections and movement delay for unsignalized intersections).

The basis of the analysis is as follows: (1) the Poisson probability distribution is used to estimate the 95<sup>th</sup> percentile maximum number of queued vehicles per signal cycle for a particular movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement. This analysis thus provides a basis for estimating future storage requirements at intersections. The queue estimates for the AM and PM peak hours are provided in Table 12. Intersections found to have a deficiency in the available turn pocket storage are described below.

### **East Signalized Project Driveway and Walsh Avenue**

The left-turn storage capacity of the southbound approach is currently 60 feet or 2 vehicles per lane. Based on the existing traffic volumes, the 95<sup>th</sup> percentile queue (100 feet) exceeds the available storage on the driveway approach during the PM peak hour. Under background conditions with full occupancy of the existing buildings, the 95<sup>th</sup> percentile queue would grow to 175 feet or 7 vehicles per lane in the PM peak hour. The project site plan shows that the driveway throat length would be extended, which would increase the left-turn storage to 215 feet or 8 vehicles per lane. Yet, the increased storage would not be sufficient to accommodate the 95<sup>th</sup> percentile queue, which would reach 325 feet per lane with the project. While the driveway would be long enough to store the average southbound left-turn queue (about 200 feet or 8 vehicles per lane), during the peak periods within the PM peak hour, the queue frequently would extend past the end of the driveway impeding circulation on internal drive aisles. The storage deficiency on site is not expected to affect traffic operations on the public street network.



**Table 11**  
**Freeway Segment Levels of Service**

Existing Plus Project Trips										Projected Trips										
Freeway	Segment	Direction	Peak Ave. Speed	# of Lanes	Mixed-Flow			HOV Lane			Total Volume	Mixed-Flow			HOV Lane			Impact		
					Capacity (vph)	Volume	Density	LOS	Ave. Speed	# of Lanes		Capacity (vph)	Volume	Density	LOS	Capacity	Volume		%	
US 101	Oakland Rd to I-880	NB	AM 7	3	6,900	2,800	133.3	F	32	1	1,800	1,958	61.2	F	56	50	0.7%	8	0.5%	NO
		PM	PM 66	3	6,900	4,173	201.5	C	67	1	1,800	542	8.1	A	15	13	0.2%	2	0.1%	NO
US 101	I-880 to Old Bayshore Hwy	NB	AM 14	3	6,900	4,220	100.5	F	47	1	1,800	2,170	46.2	E	70	60	0.9%	10	0.6%	NO
		PM	PM 66	3	6,900	4,555	23.1	C	67	1	1,800	673	10.0	A	18	15	0.2%	3	0.1%	NO
US 101	Old Bayshore Hwy to N First St	NB	AM 18	3	6,900	4,770	88.3	F	15	1	1,800	1,442	96.1	F	82	70	1.0%	12	0.7%	YES
		PM	PM 66	3	6,900	5,558	28.1	D	67	1	1,800	803	12.0	B	21	18	0.3%	3	0.2%	NO
US 101	N First St to SR 87	NB	AM 25	3	6,900	5,560	74.1	F	19	1	1,800	1,634	86.0	F	94	80	1.2%	14	0.8%	YES
		PM	PM 67	3	6,900	3,041	15.1	B	67	1	1,800	603	9.0	A	24	21	0.3%	3	0.2%	NO
US 101	SR 87 to De La Cruz Blvd	NB	AM 14	3	6,900	4,300	102.4	F	21	1	1,800	1,697	80.8	F	117	100	1.5%	17	0.9%	YES
		PM	PM 58	3	6,800	6,635	36.1	D	67	1	1,800	744	11.1	B	29	25	0.4%	4	0.2%	NO
US 101	De La Cruz Blvd to Montague Expwy / San	NB	AM 39	3	6,900	6,270	53.6	E	62	1	1,800	2,182	35.2	D	82	70	1.0%	12	0.7%	NO
		PM	PM 45	3	6,900	6,497	48.1	E	67	1	1,800	803	12.0	B	20	17	0.2%	3	0.2%	NO
US 101	Montague Expwy / San to Bowers Ave/Great Arter	NB	AM 52	3	6,900	6,519	35.0	D	66	1	1,800	1,451	22.0	C	10	9	0.1%	1	0.1%	NO
		PM	PM 65	3	6,900	5,743	29.5	D	67	1	1,800	684	10.2	A	97	83	1.2%	14	0.8%	NO
US 101	Bowers Ave/Great Arter to Lawrence Expwy	NB	AM 61	3	6,900	6,602	36.1	D	66	1	1,800	1,552	25.0	C	14	12	0.2%	2	0.1%	NO
		PM	PM 42	3	6,900	6,419	50.9	E	67	1	1,800	890	13.3	B	139	119	1.7%	20	1.1%	NO
US 101	Lawrence Expwy to Fair Oaks Ave	NB	AM 51	3	6,900	6,692	43.1	D	66	1	1,800	1,562	24.0	C	14	12	0.2%	2	0.1%	NO
		PM	PM 61	3	6,900	6,709	36.7	D	67	1	1,800	1,030	15.4	B	139	119	1.7%	20	1.1%	NO
US 101	Fair Oaks Ave to Mathilda Ave	NB	AM 32	3	6,900	5,960	62.1	F	52	1	1,800	2,182	42.0	D	12	10	0.1%	2	0.1%	NO
		PM	PM 65	3	6,900	6,157	31.6	D	67	1	1,800	958	14.3	B	125	107	1.6%	18	1.0%	NO
US 101	Mathilda Ave to SR 237	NB	AM 45	3	6,900	6,489	48.1	E	55	1	1,800	2,201	40.0	D	10	9	0.1%	1	0.1%	NO
		PM	PM 66	3	6,900	5,245	26.5	D	63	1	1,800	2,156	34.2	D	111	95	1.4%	16	0.8%	NO
US 101	SR 237 to Moffett Blvd	NB	AM 17	3	6,900	4,647	91.1	F	65	1	1,800	1,781	27.0	D	8	7	0.1%	1	0.1%	NO
		PM	PM 36	3	6,900	6,127	56.7	F	65	1	1,800	1,963	30.2	D	90	77	1.1%	13	0.7%	NO
US 101	Moffett Blvd to SR 85	NB	AM 18	3	6,900	4,755	88.1	F	25	1	1,800	1,831	73.2	F	6	5	0.1%	1	0.0%	NO
		PM	PM 24	3	6,900	5,395	74.9	F	66	1	1,800	1,861	26.2	D	76	65	0.9%	11	0.6%	NO
US 101	SR 85 to Moffett Blvd	NB	AM 54	3	6,900	6,694	41.3	D	67	1	1,800	1,219	18.2	C	63	54	0.8%	9	0.5%	NO
		PM	PM 57	3	6,900	6,684	39.1	D	65	1	1,800	1,952	30.0	D	16	14	0.2%	2	0.1%	NO
US 101	Moffett Blvd to SR 237	NB	AM 57	3	6,900	6,734	39.4	D	66	1	1,800	1,961	29.2	C	75	64	0.9%	11	0.6%	NO
		PM	PM 63	3	6,900	6,446	34.1	D	66	1	1,800	1,323	20.0	C	19	16	0.2%	3	0.2%	NO
US 101	SR 237 to Mathilda Ave	NB	AM 66	3	6,900	5,030	25.4	C	66	1	1,800	1,333	20.2	C	93	80	1.2%	13	0.7%	NO
		PM	PM 66	3	6,900	4,970	25.1	C	66	1	1,800	1,453	22.0	C	23	20	0.3%	3	0.2%	NO
US 101	Mathilda Ave to Fair Oaks Ave	NB	AM 66	3	6,900	6,140	31.5	D	66	1	1,800	1,465	22.2	C	105	90	1.3%	15	0.8%	NO
		PM	PM 51	3	6,900	6,602	43.2	D	67	1	1,800	1,074	16.0	B	26	22	0.3%	4	0.2%	NO
US 101	Fair Oaks Ave to Lawrence Expwy	NB	AM 62	3	6,900	6,610	35.5	D	67	1	1,800	1,227	18.3	C	117	100	1.5%	17	0.9%	NO
		PM	PM 20	3	6,900	4,945	82.4	F	66	1	1,800	1,784	27.0	D	29	25	0.4%	4	0.2%	NO
US 101	Lawrence Expwy to Bowers Ave/Great Arter	NB	AM 55	3	6,900	6,150	31.5	D	67	1	1,800	1,087	16.2	B	117	100	1.5%	17	0.9%	NO
		PM	PM 9	3	6,900	3,315	122.8	F	39	1	1,800	2,074	63.2	E	29	25	0.4%	4	0.2%	NO
US 101	Bowers Ave/Great Arter to Montague Expwy/San T	NB	AM 66	3	6,900	4,620	23.3	C	67	1	1,800	882	13.2	B	82	70	1.0%	12	0.7%	NO
		PM	PM 10	3	6,900	3,497	116.8	F	32	1	1,800	1,953	61.0	F	20	17	0.2%	3	0.2%	NO
US 101	Montague Expwy/San T to De La Cruz Blvd	NB	AM 66	3	6,900	5,369	27.1	D	67	1	1,800	1,741	11.1	B	10	9	0.1%	1	0.1%	NO
		PM	PM 13	3	6,900	4,063	104.2	F	50	1	1,800	2,214	44.3	D	97	83	1.2%	14	0.8%	YES
US 101	De La Cruz Blvd to SR 87	NB	AM 66	3	6,900	4,372	22.1	C	67	1	1,800	602	9.0	A	14	12	0.2%	2	0.1%	NO
		PM	PM 28	3	6,900	5,749	68.4	F	64	1	1,800	2,130	33.3	D	139	119	1.7%	20	1.1%	YES
US 101	SR 87 to N First St	NB	AM 87	3	6,900	2,830	14.0	B	67	1	1,800	272	4.1	A	12	10	0.1%	2	0.1%	NO
		PM	PM 23	3	6,900	5,335	77.3	F	62	1	1,800	2,196	42.2	D	111	95	1.4%	16	0.9%	YES
US 101	N First St to Old Bayshore Hwy	NB	AM 67	3	6,900	3,429	17.1	B	67	1	1,800	671	10.0	A	10	9	0.1%	1	0.1%	NO
		PM	PM 11	3	6,900	3,713	112.5	F	29	1	1,800	1,904	65.7	F	97	83	1.2%	14	0.8%	YES
US 101	Old Bayshore Hwy to I-880	NB	AM 67	3	6,900	3,227	16.1	B	67	1	1,800	271	4.0	A	8	7	0.1%	1	0.1%	NO
		PM	PM 11	3	6,900	3,771	114.3	F	33	1	1,800	1,952	60.4	F	83	71	1.0%	12	0.7%	YES
US 101	I-880 to Oakland Rd	NB	AM 66	3	6,900	3,765	19.0	C	67	1	1,800	341	5.1	A	6	5	0.1%	1	0.0%	NO
		PM	PM 13	3	6,900	4,159	105.6	F	36	1	1,800	2,030	56.4	E	69	59	0.9%	10	0.6%	NO
SR 87	Skyport Dr to US 101	NB	AM 6	2	4,400	1,760	148.6	F	67	1	1,800	943	14.1	B	23	20	0.4%	3	0.2%	NO
		PM	PM 67	2	4,400	2,285	17.1	B	67	1	1,800	541	8.1	A	6	5	0.1%	1	0.0%	NO
SR 87	US 101 to Skyport Dr	NB	AM 66	2	4,400	3,433	26.0	D	67	1	1,800	130	1.9	A	3	3	0.1%	0	0.0%	NO
		PM	PM 59	2	4,400	4,394	37.2	D	67	1	1,800	804	12.0	B	28	24	0.5%	4	0.2%	NO

/s/ Source: Santa Clara Valley Transportation Authority Congestion Management Program Monitoring Study, 2006.

**Table 12**  
**Vehicle Queuing and Left-Turn Storage Capacity**

Measurement	Walsh / W Dwy (Unsig)		Walsh / E Dwy (Signalized)				San Tomas / Walsh			
	AM	PM	AM	EBL	PM	SBL	AM	NBL	PM	EBL
<b>Existing</b>										
Cycle/Delay <sup>1</sup> (sec)	9.2	0	110		110	110	190	190	190	190
Volume (vphpl)	14	0	7		1	15	122	37	47	252
Avg. Queue (veh/ln.)	0.0	0.0	0.2		0.0	0.5	6.4	2.0	2.5	13.3
Avg. Queue <sup>2</sup> (ft./ln.)	1	0	5		1	11	161	49	62	333
95th % Queue (veh/ln.)	0	0	1		0	2	11	4	5	20
95th % Queue (ft./ln.)	0	0	25		0	50	275	100	125	500
Storage (ft./ln.)	60	60	100		100	60	250	250	135	135
Adequate (Y/N)	Y	Y	Y		Y	N	N	Y	Y	N
<b>Background</b>										
Cycle/Delay <sup>1</sup> (sec)	10	8	110		110	110	190	190	190	190
Volume (vphpl)	28	3	18		3	39	208	59	66	329
Avg. Queue (veh/ln.)	0.1	0.0	0.6		0.1	1.2	11.0	3.1	3.5	17.4
Avg. Queue <sup>2</sup> (ft./ln.)	2	0	14		2	30	274	78	87	434
95th % Queue (veh/ln.)	1	0	2		1	3	17	6	7	24
95th % Queue (ft./ln.)	25	0	50		25	75	425	150	175	600
Storage (ft./ln.)	60	60	100		100	60	250	250	135	135
Adequate (Y/N)	Y	Y	Y		Y	N	N	Y	N	N
<b>Project</b>										
Cycle/Delay <sup>1</sup> (sec)	11.9	8.3	110		110	110	190	190	190	190
Volume (vphpl)	50	8	36		7	69	346	88	83	497
Avg. Queue (veh/ln.)	0.2	0.0	1.1		0.2	2.1	18.3	4.6	4.4	26.2
Avg. Queue <sup>2</sup> (ft./ln.)	4	0	28		5	53	457	116	110	656
95th % Queue (veh/ln.)	1	0	3		1	5	26	8	8	35
95th % Queue (ft./ln.)	25	0	75		25	125	650	200	200	875
Storage (ft./ln.)	60	60	100		100	215	250	250	135	135
Adequate (Y/N)	Y	Y	Y		Y	N	N	Y	N	N
<b>Mitigated Project</b>										
Cycle/Delay <sup>1</sup> (sec)	11.9	8.3	110		110	110	190	190	190	190
Volume (vphpl)	50	8	36		7	69	346	88	83	249
Avg. Queue (veh/ln.)	0.2	0.0	1.1		0.2	2.1	18.3	4.6	4.4	13.1
Avg. Queue <sup>2</sup> (ft./ln.)	4	0	28		5	53	457	116	110	329
95th % Queue (veh/ln.)	1	0	3		1	5	26	8	8	19
95th % Queue (ft./ln.)	25	0	75		25	125	650	200	200	475
Storage (ft./ln.)	60	60	100		100	215	250	250	350	350
Adequate (Y/N)	Y	Y	Y		Y	N	N	Y	Y	N

<sup>1</sup> Vehicle queue calculations based on cycle length for signalized intersections, and movement delay for unsignalized intersections.

<sup>2</sup> Assumes 25 Feet Per Vehicle Queued

## San Tomas Expressway and Walsh Avenue

The left-turn storage capacity on northbound San Tomas Expressway at Walsh Avenue is 250 feet, or 10 vehicles per lane. Under existing conditions, the northbound left-turn pocket is inadequate to accommodate the 95<sup>th</sup> percentile queue of 275 feet or 11 vehicles per lane during the AM peak hour. Under background conditions, the 95<sup>th</sup> percentile queue length is estimated to reach 425 feet or 17 vehicles per lane. The additional traffic generated under the proposed project would cause the 95<sup>th</sup> percentile queue length to increase to 650 feet or 26 vehicles per lane. There are two left-turn lanes and a raised median at this location. Lengthening the northbound left-turn pocket to accommodate the project



queue length would require widening the roadway. The existing right-of-way is adequate for this improvement.

Eastbound Walsh Avenue currently has only a single 135-foot left-turn lane at San Tomas Expressway. Under existing conditions, the eastbound left-turn pocket is inadequate to accommodate the 95<sup>th</sup> percentile queue of 500 feet or 20 vehicles per lane during the PM peak hour. Under background conditions, the 95<sup>th</sup> percentile queue length is estimated to reach 600 feet or 24 vehicles per lane. The additional traffic generated under the proposed project would cause the 95<sup>th</sup> percentile queue length to increase to 875 feet or 35 vehicles per lane. The addition of a second eastbound left-turn lane is recommended to mitigate the significant impact on the intersection's level of service. Furthermore, it would help to alleviate the existing left-turn storage deficiency. Due to the proximity of this intersection with the signalized project driveway on Walsh Avenue, it is recommended that the dual left-turn lanes on eastbound Walsh Avenue at San Tomas Expressway be built side-by-side with the single westbound left-turn lane at the adjacent intersection. Although the side-by-side configuration would require more right-of-way than the current end-to-end configuration, it would maximize the queue storage area resulting in as much as 350 feet of queue storage per lane. Even so, the side-by-side dual left-turn lanes would fall short of the estimated 95<sup>th</sup> percentile queue of 475 feet per lane. It is recommended that the closely spaced intersections operate under close signal coordination to manage queues.

### ***Transit, Pedestrian and Bicycle Analysis***

It can be assumed that some of the project trips would be made by transit. Assuming a 2% transit mode share, which is probably the highest that could be expected, yields an estimate of 28 transit trips during the peak hour. Including VTA busses, Caltrain shuttles, and ACE shuttles, there are a total of 34 busses within one-half mile of the project site during the peak hour. Therefore, it is concluded that the additional transit riders that may be generated by the proposed project could be accommodated by the existing transit service. Improvements are recommended to facilitate pedestrian travel to and from the nearby bus stops.

There are bus stops on San Tomas Expressway immediately adjacent to and across the street from the project site. Sidewalk segments connect the bus stops to the San Tomas/Walsh intersection. It is recommended that the sidewalk on the west side of San Tomas Expressway be extended northward along the length of the project frontage to Central Expressway. From there, the sidewalk should continue along the northern edge of the property adjacent to Central Expressway leading to a crosswalk across an internal roadway in order to connect to the existing sidewalk on the south side of the Condensa Street Bridge. The recommended sidewalks along the perimeter of the site would provide a direct route for people walking to and from the bus stops on San Tomas and Central Expressways.

There is also a bus stop on the north side of Walsh Avenue approximately 400 feet east of San Tomas Expressway. Additional bus stops can be accessed by continuing eastward on Walsh Avenue to Scott Boulevard. A sidewalk is present along the length of the project frontage on the north side of Walsh Avenue. East of San Tomas Expressway, sidewalks are present on both sides of Walsh Avenue to Scott Boulevard. It is suggested that a crosswalk be added to the north leg of the San Tomas/Walsh intersection to increase the convenience of pedestrians traveling between the project site and the bus stops on the east side of San Tomas Expressway. In addition, a bus stop may be constructed along the project frontage on Walsh Avenue, which would further improve the convenience for transit riders and diminish the need to add a crosswalk at the San Tomas/Walsh intersection.

West of the San Tomas Aquino Creek, there is no sidewalk on the north side of Walsh Avenue until Northwestern Parkway, where the sidewalk resumes in interrupted segments to Bowers Avenue. The lack



of sidewalks on certain short segments on the north side of the street is compensated by the availability of a continuous sidewalk on the south side of Walsh Avenue from Bowers Avenue to San Tomas Expressway. Furthermore, Walsh Avenue has crosswalks at Northwestern Parkway and at the signalized project driveway to assist pedestrians in accessing the sidewalk on the south side of the street.

An inactive bus stop is located on Central Expressway approximately 200 feet east of Northwestern Parkway. A segment of sidewalk extends from this bus stop along Central Expressway and Northwestern Parkway to Condensa Street. While a sidewalk currently exists along the project frontage on the south side of Condensa Street, it ends at the western property line. In order to provide a safe and convenient pedestrian route between the project site and the bus stop on Central Expressway, it is recommended that the project extend the sidewalk westward along the south side of Condensa Street to Northwestern Parkway (a distance of approximately 250 feet). Furthermore, the sidewalk along Condensa Street should be extended eastward by roughly 100 feet in order to connect to the trail on the west side of the San Tomas Aquino Creek and to the existing sidewalk on the south side of the Condensa Street bridge.

The project proposes to construct a new pedestrian bridge over the San Tomas Aquino Creek to facilitate travel between the proposed office buildings on the east and west project sites. Aside from this feature, the preliminary site plan available at this date does not show pedestrian connections within the project sites. Pedestrian pathways should be included within the project sites to connect the buildings' main points of entry/exit with existing and recommended sidewalks and bus stops along adjacent roadways.

It is expected that bicycle trips would comprise no more than one percent of the total project-generated trips. Thus, the project could generate 14 new bicycle trips. The existing bicycle facilities would be adequate to serve the anticipated demand.

## **Site Access, On-Site Circulation and Parking**

### **Site Access**

The project comprises two sites. The east project site, which is located between San Tomas Expressway and San Tomas Aquino Creek, would be served by three driveways. One driveway would be located on Walsh Avenue just east of San Tomas Aquino Creek. Like the existing driveway at the same location, this driveway would allow both left and right turns into the site but would be limited to only right turns out of the site. The east site also would maintain the current full-access signalized driveway on Walsh Avenue. As shown on the site plan, the driveway would include three lanes outbound. The level of service calculation at this intersection assumes that the driveway will be striped to include an exclusive left-turn lane, a shared through/left-turn lane, and a right-turn lane. Although not necessary to achieve an acceptable level of service, it is recommended that the right-turn lane extend as far as the other lanes in order to minimize the proportion of time that it is blocked by queues in the adjacent lane. The project also proposes to utilize a right-turn-only driveway on San Tomas Expressway, which would be located approximately 50 feet south of an existing right-turn-only driveway. The slight shift in the driveway location would not have an appreciable effect on traffic operations.

The west project site, which is located immediately west of San Tomas Aquino Creek on Condensa Street, would be served by four full-access driveways on Condensa Street. In addition, the east and west sites are connected by a bridge over the San Tomas Aquino Creek, allowing vehicular and pedestrian access to and from one site through the other.



Each of the proposed driveway locations offers adequate sight distance in both directions. The project driveways should be free and clear of any obstructions to optimize sight distance. Any landscaping and signage near the driveways should be located in such a way to ensure an unobstructed view for drivers entering and exiting the site.

To determine if the site driveways are adequate for service vehicle access, the WB-40 and SU-30 AASHTO design vehicle turning specifications were checked against the driveway and roadway geometrics associated with the site. The site plan shows that the inbound lane at the signalized project driveway on Walsh Avenue would be only 12 feet wide with a raised curb and median on either side. The lane width should be increased to 15 feet to facilitate inbound truck movements. Because there are multiple outbound lanes at this driveway, trucks could negotiate outbound turn movements successfully by using more than one lane. Likewise, the width of both the inbound and outbound lanes at the western project driveway on Condensa Street also should be increased to 15 feet to accommodate truck movements.

### ***On-Site Circulation***

The drive aisles are shown to have a typical width of 25 feet, which would allow for adequate circulation and maneuvering for 90-degree parking stalls. The width of internal roadways, which varies from 24 to 30 feet, would be sufficient for two-way circulation. According to the site plan, the internal roadway network would not contain any dead-end drive aisles. The design and layout of the on-site roadways is generally adequate to accommodate circulation of passenger vehicles and emergency vehicles. Clear sight distance triangles should be provided where internal roadways are curved and at internal roadway junctions to optimize sight distance. Any landscaping and signage should be located in such a way to ensure an unobstructed view for drivers exiting the site. Provisions for truck loading are included for each of the proposed office buildings. The internal roadways are adequate to allow trucks to circulate to and from the loading areas within the site.

Each of the three proposed parking garages is shown to have two access points. Each garage access would have a single lane in each direction, which would be sufficient if vehicles are allowed to enter or exit the garage unimpeded. However, additional lanes and queue storage would be needed if the garage access is to be gated or controlled by some other means.

Overall, the site plan exhibits adequate site access and on-site circulation for motor vehicles. The City ultimately will determine the adequacy of the proposed driveways and internal street system design.

### ***Parking***

As shown on Figure 2, the project would provide 7,050 parking stalls on site. The City of Santa Clara's zoning codes require 1 space per 300 s.f. of gross floor area for office space. The project would consist of 1,950,000 s.f. of office space. The total number of spaces required according to the City's code would be 6,500 spaces. Thus, the project would exceed the City's parking requirements.





## **5.**

# **Cumulative Conditions**

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This chapter presents a summary of the traffic conditions that would occur under cumulative conditions. Cumulative conditions reflect traffic conditions that would occur at the time that the proposed project is completed. For this analysis, the assumed completion date is 2010. The analysis of cumulative conditions is required by the CMP.

## **Transportation Network under Cumulative Conditions**

It is assumed that the roadway network under cumulative conditions would be the same as the roadway network described under project conditions.

## **Cumulative Traffic Volumes**

Traffic volumes under cumulative conditions were estimated by applying to the existing volumes an annual growth rate of 1.2 percent, then adding the trips from approved developments, estimated project trips, and trips from proposed but not yet approved (pending) development projects. A list of pending projects can be found in Appendix B. In addition, cumulative conditions also include trips generated by Phase 2 of the recently approved North San Jose Development Policy. The CMA Guidelines provide for use of either a 1.2 percent growth rate per year or a list of proposed future projects. By using both, this analysis is conservative, in that it shows more growth than the CMA Guidelines require. Figure 11 shows the cumulative traffic volumes. Appendix C lists each of the components used to tabulate cumulative traffic volume at each intersection.

## **Intersection Levels of Service under Cumulative Conditions**

The level of service results under cumulative conditions are summarized in Table 13. The results show that seventeen study intersections would operate at unacceptable levels during one or both peak hours. The intersection level of service calculations are included in Appendix D.



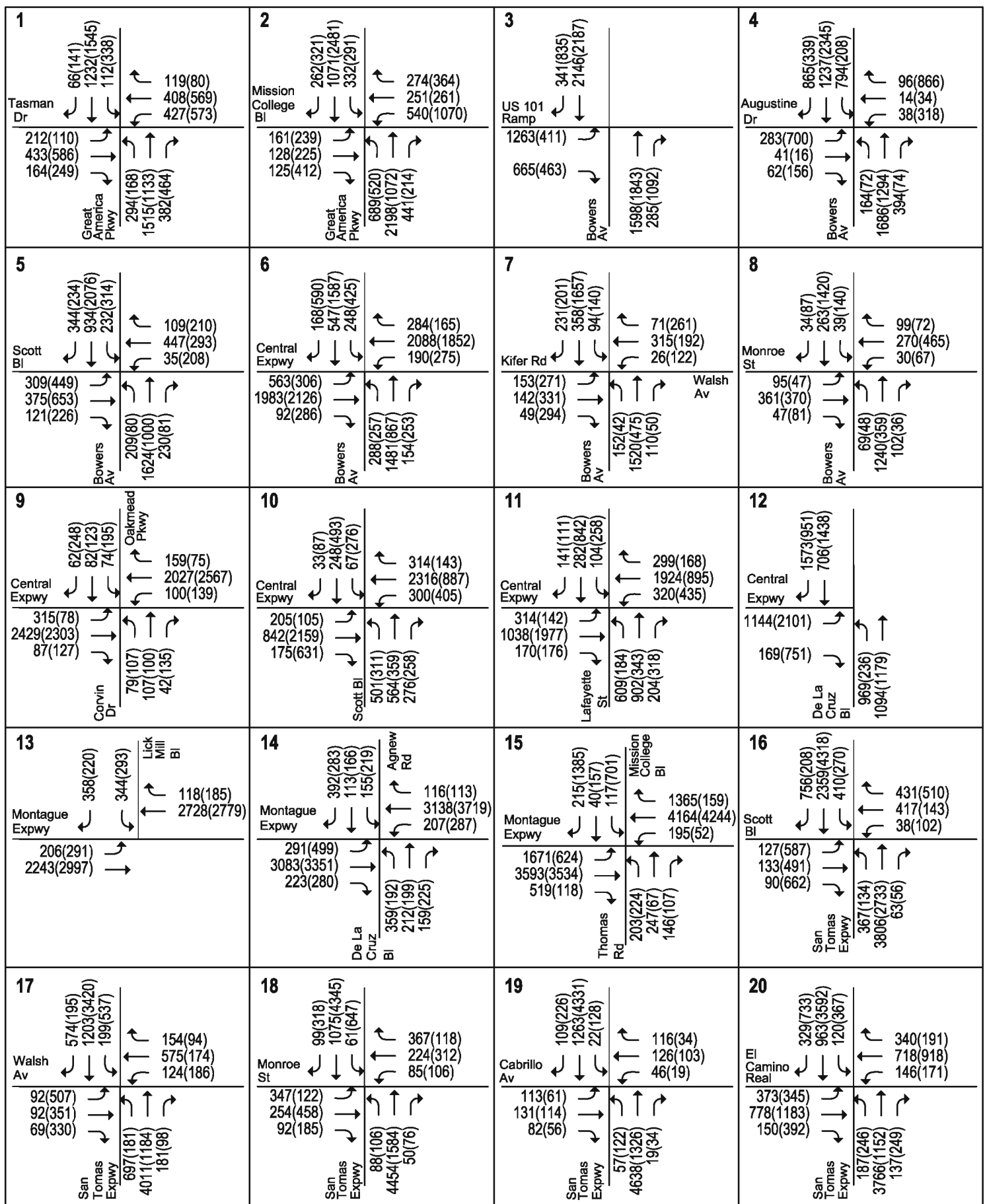


Figure 11

# CUMULATIVE TRAFFIC VOLUMES

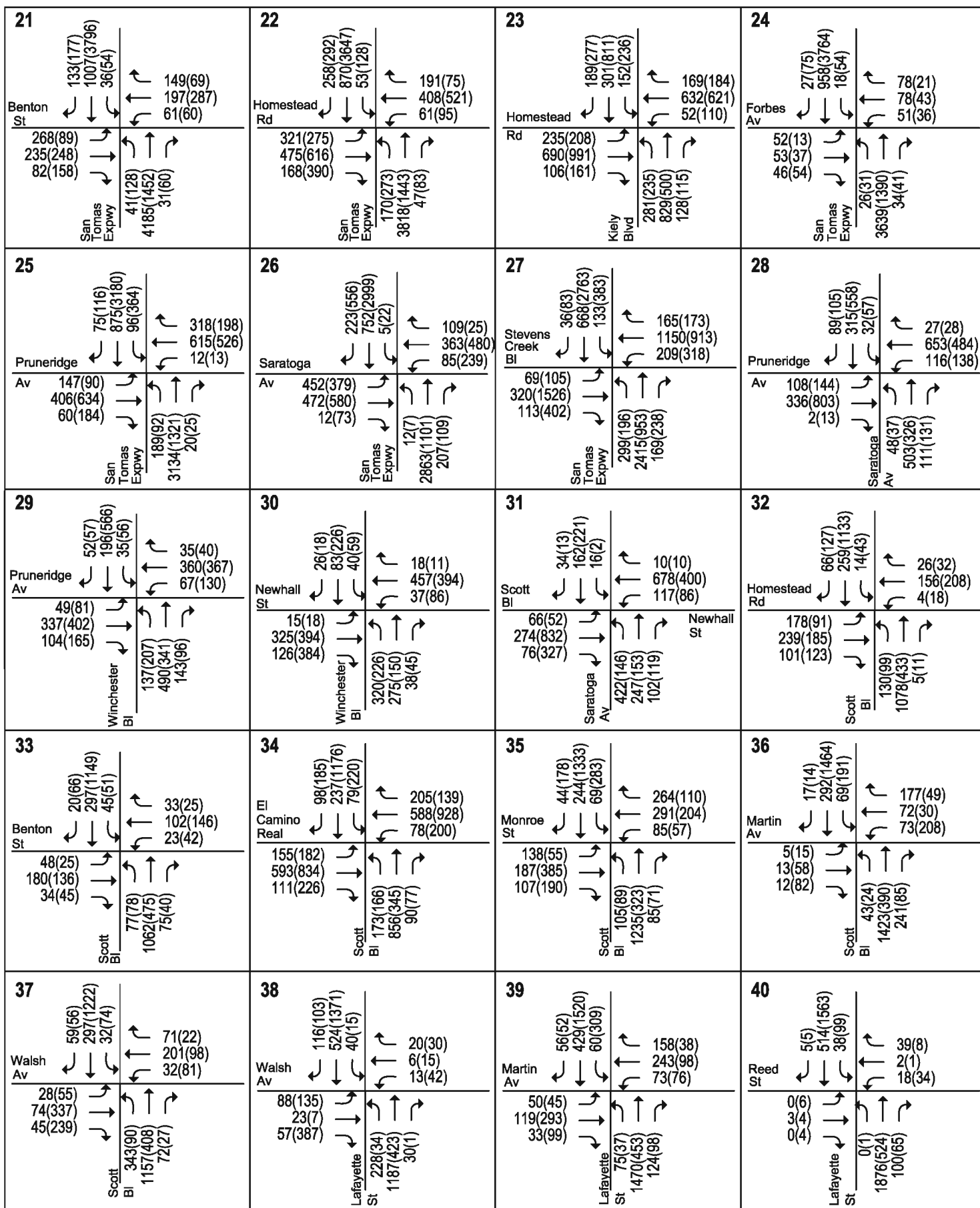


Figure 11

# CUMULATIVE TRAFFIC VOLUMES

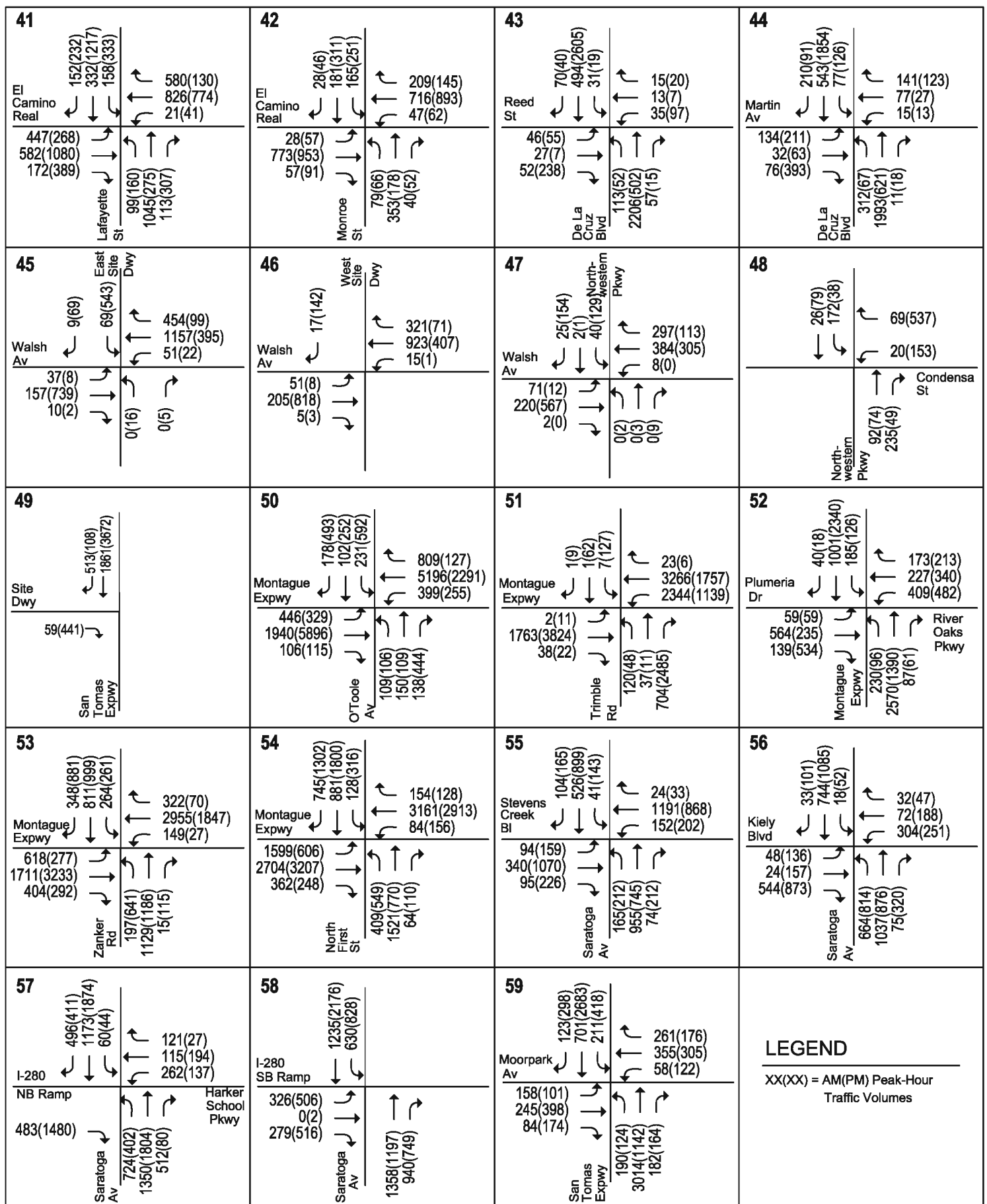


Figure 11

# CUMULATIVE TRAFFIC VOLUMES

**Table 13**  
**Intersections Levels of Service under Cumulative Conditions**

Study Intersection	Peak Hour	Background		Cumulative				Mitigated	
		Avg. Del.	LOS	Avg. Del.	LOS	Incr. In Crit. Del.	Incr. In Crit. V/C	Avg. Del.	LOS
<b>Santa Clara Intersections</b>									
1 Great America Parkway & Tasman Drive*	AM	25.6	C	27.2	C	1.8	0.065		
	PM	29.5	C	31.1	C	2.6	0.076		
2 Great America Parkway & Mission College Boulevard*	AM	41.4	D	43.8	D	2.9	0.097	41.8	D
	PM	78.7	E	104.9	F	40.1	0.105	73.8	E
3 Bowers Avenue & US 101 SB Ramps*	AM	25.2	C	26.4	C	3.7	0.139		
	PM	10.4	B	10.3	B	0.1	0.046		
4 Bowers Avenue & Augustine Drive	AM	24.7	C	89.9	F	119.2	0.478	32.4	C
	PM	51.6	D	160.7	F	153.8	0.459	112.5	F
5 Bowers Avenue & Scott Boulevard*	AM	30.7	C	35.6	D	9.3	0.231		
	PM	32.6	C	37.4	D	5.4	0.138		
6 Bowers Avenue & Central Expressway*	AM	57.7	E	83.0	F	44.4	0.149	62.1	E
	PM	58.2	E	72.5	E	21.0	0.103	60.6	E
7 Bowers Avenue & Walsh Avenue/Kifer Road	AM	16.7	B	17.2	B	0.6	0.098		
	PM	20.3	C	21.7	C	1.5	0.078		
8 Bowers Avenue & Monroe Street	AM	29.9	C	31.1	C	1.3	0.077		
	PM	34.4	C	40.3	D	6.6	0.127		
9 Oakmead Parkway & Central Expressway*	AM	23.8	C	27.3	C	3.0	0.040		
	PM	29.8	C	33.6	C	2.1	0.084		
10 Scott Boulevard & Central Expressway*	AM	48.1	D	52.8	D	5.6	0.098		
	PM	39.4	D	43.6	D	6.0	0.079		
11 Lafayette Street & Central Expressway*	AM	54.5	D	58.3	E	6.9	0.252		
	PM	53.8	D	58.3	E	1.4	0.053		
12 De La Cruz Boulevard & Central Expressway*	AM	48.1	D	52.4	D	5.6	0.079	46.5	D
	PM	86.0	F	100.6	F	26.8	0.078	63.2	E
13 Lick Mill Boulevard & Montague Expressway	AM	24.6	C	24.9	C	0.3	0.060		
	PM	20.0	B	20.2	C	0.7	0.030		
14 De La Cruz Boulevard/Agnew Road & Montague Expressway*	AM	44.0	D	55.1	E	15.0	0.178		
	PM	40.5	D	53.3	D	20.3	0.161		
15 Mission College Boulevard & Montague Expressway*	AM	76.0	E	110.7	F	83.6	0.213	102.9	F
	PM	43.5	D	73.0	E	50.1	0.177	69.3	E
16 San Tomas Expressway & Scott Boulevard*	AM	36.8	D	42.5	D	4.2	0.064	41.5	D
	PM	60.5	E	86.6	F	39.0	0.130	79.3	E
17 San Tomas Expressway & Walsh Avenue	AM	37.3	D	49.0	D	14.9	0.117	0.0	0
	PM	45.9	D	64.5	E	29.0	0.225	0.0	0
18 San Tomas Expressway & Monroe Street*	AM	46.9	D	68.4	E	29.7	0.116		
	PM	43.4	D	54.2	D	17.6	0.128		
19 San Tomas Expressway & Cabrillo Avenue	AM	25.6	C	29.6	C	5.8	0.094		
	PM	25.8	C	28.3	C	3.6	0.099		
20 San Tomas Expressway & El Camino Real*	AM	66.3	E	90.8	F	44.6	0.127	66.7	E
	PM	77.6	E	100.3	F	41.4	0.126	84.0	F
21 San Tomas Expressway & Benton Street	AM	87.6	F	125.7	F	52.9	0.122	41.3	D
	PM	46.6	D	79.0	E	49.9	0.141	32.5	C
22 San Tomas Expressway & Homestead Road*	AM	112.0	F	149.0	F	52.0	0.115	62.7	E
	PM	98.0	F	137.5	F	61.1	0.149	64.1	E
23 Kiely Boulevard & Homestead Road	AM	29.0	C	31.3	C	3.9	0.098		
	PM	32.5	C	34.3	C	2.6	0.058		
24 San Tomas Expressway & Forbes Avenue	AM	19.4	B	27.0	C	10.0	0.087		
	PM	14.5	B	25.5	C	16.5	0.103		
25 San Tomas Expressway & Pruneridge Avenue	AM	56.0	E	74.5	E	26.5	0.096		
	PM	49.8	D	63.9	E	21.6	0.103		
26 San Tomas Expressway & Saratoga Avenue*	AM	72.8	E	103.7	F	48.8	0.120	48.5	D
	PM	81.9	F	106.7	F	42.4	0.098	49.1	D
27 San Tomas Expressway & Stevens Creek Boulevard*	AM	53.7	D	57.3	E	5.7	0.058	57.2	E
	PM	115.9	F	134.7	F	29.6	0.080	109.4	F
28 Saratoga Avenue & Pruneridge Avenue	AM	20.0	B	20.1	C	0.2	0.017		
	PM	21.0	C	21.3	C	0.4	0.024		
29 Winchester Boulevard & Pruneridge Avenue/Hedding Street	AM	23.2	C	23.4	C	0.1	0.020		
	PM	30.0	C	31.3	C	2.0	0.033		
30 Winchester Boulevard & Newhall Street	AM	24.2	C	24.4	C	0.2	0.023		
	PM	20.4	C	20.8	C	0.4	0.021		



**Table 13 (Continued)**  
**Intersections Levels of Service under Cumulative Conditions**

Study Intersection	Peak Hour	Background		Cumulative				Mitigated	
		Avg. Del.	LOS	Avg. Del.	LOS	Incr. In Crit. Del.	Incr. In Crit. V/C	Avg. Del.	LOS
Santa Clara Intersections (Continued)									
31 Saratoga Avenue & Newhall Street/Scott Boulevard	AM	25.8	C	26.2	C	0.6	0.026		
	PM	23.6	C	23.8	C	0.2	0.020		
32 Scott Boulevard & Homestead Road	AM	21.0	C	21.3	C	0.8	0.032		
	PM	23.4	C	23.9	C	1.0	0.029		
33 Scott Boulevard & Benton Street	AM	18.5	B	18.6	B	0.2	0.023		
	PM	14.0	B	14.3	B	0.3	0.023		
34 Scott Boulevard & El Camino Real*	AM	34.0	C	34.2	C	-0.1	0.017		
	PM	39.1	D	40.1	D	1.5	0.036		
35 Scott Boulevard & Monroe Street	AM	28.7	C	29.3	C	1.7	0.083		
	PM	25.7	C	26.5	C	1.3	0.037		
36 Scott Boulevard & Martin Avenue	AM	17.1	B	17.5	B	0.0	0.027		
	PM	21.9	C	22.2	C	0.3	0.030		
37 Scott Boulevard & Walsh Avenue	AM	22.9	C	25.8	C	15.4	0.084		
	PM	27.5	C	30.0	C	3.3	0.069		
38 Lafayette Street & Walsh Avenue	AM	16.2	B	16.9	B	0.3	0.013		
	PM	20.9	C	23.3	C	3.4	0.062		
39 Lafayette Street & Martin Avenue	AM	19.3	B	20.2	C	1.2	0.034		
	PM	19.5	B	20.2	C	0.6	0.031		
40 Lafayette Street & Reed Street	AM	8.3	A	8.7	A	0.5	0.025		
	PM	16.6	B	17.1	B	0.8	0.034		
41 Lafayette Street & El Camino Real*	AM	46.3	D	53.0	D	13.8	0.087		
	PM	41.5	D	44.8	D	6.1	0.084		
42 Monroe Street & El Camino Real*	AM	38.6	D	39.0	D	0.6	0.026		
	PM	36.5	D	37.3	D	1.4	0.038		
43 De La Cruz Boulevard & Reed Street	AM	11.1	B	11.6	B	0.7	0.039		
	PM	13.7	B	15.1	B	1.7	0.050		
44 De La Cruz Boulevard & Martin Avenue	AM	29.2	C	29.4	C	0.2	0.036		
	PM	29.2	C	29.3	C	-1.2	0.028		
45 East Signalized Driveway & Walsh Avenue	AM	9.4	A	10.8	B	2.1	0.189		
	PM	23.0	C	27.3	C	4.9	0.112		
46 West Site Driveway & Walsh Avenue (unsignalized)	AM	11.7	B	13.6	B	NA	NA		
	PM	9.7	A	10.7	B	NA	NA		
47 Northwestern Parkway & Walsh Avenue (unsignalized)	AM	15.2	C	18.8	C	NA	NA		
	PM	15.6	C	22.4	C	NA	NA		
48 Northwestern Parkway & Condensa Street (unsignalized)	AM	10.0	B	12.6	B	NA	NA		
	PM	9.4	A	12.8	B	NA	NA		
49 San Tomas Expressway & Site Driveway (unsignalized)	AM	9.7	A	10.1	B	NA	NA		
	PM	12.4	B	26.8	D	NA	NA		
San Jose Intersections									
50 McCarthy Boulevard/O'Toole Avenue & Montague Expressway*	AM	44.4	D	85.1	F	62.2	0.216	32.3	C
	PM	146.6	F	241.1	F	141.0	0.310	33.2	C
51 Montague Expressway & Trimble Road*	AM	32.2	C	41.9	D	17.9	0.186	24.1	C
	PM	127.5	F	231.9	F	131.5	0.308	43.2	D
52 Montague Expressway & Plumeria Drive/River Oaks Parkway	AM	44.5	D	56.5	E	15.9	0.187	56.5	E
	PM	52.5	D	62.3	E	16.0	0.200	62.3	E
53 Zanker Road & Montague Expressway*	AM	65.4	E	105.5	F	69.7	0.210	87.2	F
	PM	98.2	F	188.7	F	98.6	0.338	144.3	F
54 North First Street & Montague Expressway*	AM	212.8	F	276.5	F	96.5	0.215	217.9	F
	PM	273.9	F	360.4	F	88.5	0.200	316.6	F
55 Saratoga Avenue & Stevens Creek Boulevard*	AM	34.6	C	35.0	D	0.8	0.037		
	PM	38.7	D	40.0	D	1.8	0.069		
56 Saratoga Avenue & Kiely Boulevard*	AM	37.8	D	38.7	D	1.0	0.037		
	PM	44.3	D	46.2	D	3.2	0.051		
57 Saratoga Avenue & I-280 NB Ramps*	AM	30.6	C	30.5	C	0.6	0.017		
	PM	24.5	C	24.2	C	-0.2	0.032		
58 Saratoga Avenue & I-280 SB Ramps*	AM	32.8	C	35.6	D	5.1	0.039		
	PM	45.0	D	48.0	D	9.9	0.035		
59 San Tomas Expressway & Moorpark Avenue*	AM	60.5	E	68.8	E	12.5	0.047	54.6	D
	PM	44.8	D	49.8	D	2.1	0.048	47.9	D

\* Denotes CMP Intersection

Note: Signalized delay and LOS are average of all intersection movements.

Unsignalized delay and LOS are for the worst controlled lane group.

**Bold** indicates substandard level of service

indicates a significant impact



The cumulative scenario will significantly impact seventeen study intersections expected to operate at unacceptable levels. Each of the impacted intersections and recommended mitigation measures are described below.

The unsignalized intersections are expected to continue to operate with low to moderate levels of delay equivalent to LOS D or better. Therefore, no improvements are required for the unsignalized intersections.

## Cumulative Impacts and Mitigation Measures

### Great America Parkway and Mission College Boulevard\*

**Impact:** This CMP intersection would operate at LOS F during the PM peak hour under background conditions, and the addition of traffic under the cumulative scenario would cause the critical-movement delay at the intersection to increase by four or more seconds and the volume-to-capacity ratio (V/C) to increase by .01 or more. This constitutes a significant cumulative impact under the CMP definition.

**Mitigation:** The significant cumulative impact at this intersection could be satisfactorily mitigated by adding a third westbound left-turn lane. The City of Santa Clara plans to construct this improvement. It is appropriate that the proposed development pay a fair share contribution toward the cost of the improvements at this intersection. This fair share contribution is estimated to be 1%, based on the project's share of the estimated traffic volume growth at this intersection, including all approved and pending project traffic. With this improvement, the intersection would continue to operate at LOS F. However, the average intersection delay would be less than that under background conditions.

### Bowers Avenue and Augustine Drive

**Impact:** This intersection would operate at LOS C and LOS D during the AM and PM peak hours, respectively, under background conditions. The addition of traffic under the cumulative scenario would, during both AM and PM peak hours, cause the intersection to degrade to an unacceptable level (LOS F). This constitutes a significant cumulative impact under the City of Santa Clara's definition.

**Mitigation:** The significant cumulative impact at this intersection could be partially mitigated by adding a second southbound left-turn lane and a second eastbound left-turn lane. The additional southbound left-turn lane improvement has been identified as part of the proposed redevelopment of a property adjacent to this intersection. The second eastbound left-turn lane could be added by restriping the eastbound through lane to a left-turn lane and restriping the eastbound right-turn lane to a shared through-right-turn lane. With these modifications, the intersection would operate at acceptable levels (LOS D or better) during the AM peak hour. However, the intersection would continue to operate at LOS F during the PM peak hour. Additional improvements that would fully mitigate the cumulative impact at this intersection would require the acquisition of additional right-of-way.





### Bowers Avenue and Central Expressway\*

**Impact:** This intersection would operate at LOS E during the AM peak hour under background conditions, and the addition of traffic under the cumulative scenario would cause the intersection to degrade to an unacceptable level (LOS F). This constitutes a significant cumulative impact under the CMP definition.

**Mitigation:** The significant cumulative impact to this intersection could be mitigated by converting the existing HOV lane on eastbound and westbound Central Expressway to mixed-flow lanes. The Comprehensive County Expressway Planning Study identifies as a Tier 1A project the conversion of HOV lanes to mixed-flow lanes at this intersection. With this modification, the intersection would operate at acceptable levels (LOS E).

### De La Cruz Boulevard and Central Expressway\*

**Impact:** This CMP intersection would operate at LOS F during the PM peak hour under background conditions, and the addition of traffic under the cumulative scenario would cause the critical-movement delay at the intersection to increase by four or more seconds and the volume-to-capacity ratio (V/C) to increase by .01 or more. This constitutes a significant cumulative impact under the CMP definition.

**Mitigation:** The significant cumulative impact to this intersection could be mitigated by converting the existing HOV lane on eastbound Central Expressway to a mixed-flow lane. The Comprehensive County Expressway Planning Study states that the Measure B HOV lane widening on Central Expressway between San Tomas and De La Cruz Boulevard will be converted to a mixed-flow lane if the HOV lane performs poorly after a three to five year trial period. With this modification, the intersection would operate at acceptable levels (LOS E).

### Mission College Boulevard/Thomas Road and Montague Expressway\*

**Impact:** This CMP intersection would operate at LOS E during the AM peak hour under background conditions, and the addition of traffic under the cumulative scenario would cause the intersection to degrade to an unacceptable LOS F. This constitutes a significant cumulative impact under the CMP definition.

**Mitigation:** The significant cumulative impact at this intersection could be partially mitigated by providing a third left-turn lane on eastbound Montague Expressway to northbound Mission College Boulevard. This could be accomplished by reducing the number of eastbound through lanes. Mission College Boulevard has three lanes but would have to be reconfigured to accommodate the flow of traffic from the additional left-turn lane. This change would allow the traffic signal to operate more efficiently. However, the intersection would continue to operate at unacceptable levels (LOS F) during the AM peak hour. The Comprehensive County Expressway Planning Study identifies the construction of a full interchange at this intersection as a Tier 2 priority. This improvement would fully mitigate the cumulative impact at this intersection.



### San Tomas Expressway and Scott Boulevard\*

**Impact:** This CMP intersection would operate at LOS E during the PM peak hour under background conditions, and the addition of traffic under the cumulative scenario would cause the intersection to degrade to an unacceptable LOS F. This constitutes a significant cumulative impact under the CMP definition.

**Mitigation:** This intersection's level of service could be improved to an acceptable level (LOS E) by adding a second right-turn lane to the east approach. This improvement was identified as a Tier 1C priority in the Comprehensive County Expressway Planning Study.

### San Tomas Expressway and El Camino Real\*

**Impact:** This CMP intersection is expected to operate at an acceptable level (LOS E) during the AM and PM peak hours under background conditions, and the addition of traffic under the cumulative scenario would cause the intersection to degrade to an unacceptable LOS F during both the AM and PM peak hours. This constitutes a significant cumulative impact under the CMP definition.

**Mitigation:** The significant cumulative impact at this intersection could be partially mitigated by the addition of a second left-turn lane on both the east and west approaches. This improvement was identified as a Tier 1A priority in the Comprehensive County Expressway Planning Study. With this improvement, the intersection would operate at an acceptable LOS E during the AM peak hour. However, during the PM peak hour, the intersection would continue to operate at an unacceptable LOS F. The Comprehensive County Expressway Planning Study identifies the construction of a full interchange at this intersection as a Tier 2 priority. This improvement would fully mitigate the cumulative impact at this intersection.

### San Tomas Expressway and Benton Street

**Impact:** This intersection is expected to operate at an unacceptable level of service (LOS F) during the AM peak hour under background conditions, and the addition of traffic under the cumulative scenario would cause the intersection's average critical delay to increase by four or more seconds and the volume-to-capacity ratio (V/C) to increase by 0.01 or more. This constitutes a significant cumulative impact to the intersection under the City of Santa Clara's definition.

**Mitigation:** This intersection's level of service could be improved by adding a fourth through lane to both the north and south approaches. These improvements would reduce the average delay for vehicular traffic to acceptable levels (LOS E or better). The Comprehensive County Expressway Planning Study identifies the widening of San Tomas Expressway to eight lanes as a Tier 1A priority.



### San Tomas Expressway and Homestead Road\*

**Impact:** This CMP intersection is expected to operate at LOS F during the AM and PM peak hours under background conditions and the addition of traffic under the cumulative scenario would cause the critical-movement delay at the intersection to increase by four or more seconds and the volume-to-capacity ratio (V/C) to increase by .01 or more. This constitutes a significant cumulative impact under the CMP definition.

**Mitigation:** The significant cumulative impact at this intersection could be satisfactorily mitigated by adding a fourth through lane to both the north and south approaches. This improvement was identified as a Tier 1A priority in the Comprehensive County Expressway Planning Study. With the improvement, the intersection would operate at acceptable levels (LOS E).

### San Tomas Expressway and Saratoga Avenue\*

**Impact:** This CMP intersection is expected to operate at an acceptable level of service (LOS E) during the AM peak hour under background conditions, and the additional traffic generated under the cumulative scenario would cause the intersection's level of service to degrade to an unacceptable level (LOS F). The intersection is expected to operate at an unacceptable level of service (LOS F) during the PM peak hour under background conditions, and the additional traffic generated under the cumulative scenario would cause the critical-movement delay at the intersection to increase by four or more seconds and the volume-to-capacity ratio (V/C) to increase by .01 or more. This constitutes a significant cumulative impact to the intersection under the CMP definition.

**Mitigation:** This intersection's level of service could be improved by adding a second eastbound left-turn lane and a fourth southbound through lane. The County plans to construct the additional left-turn lane with partial funding from the City of Santa Clara. The widening of San Tomas Expressway to eight lanes is identified as a Tier 1A priority in the Comprehensive County Expressway Planning Study. With the improvements, the intersection would operate at acceptable levels (LOS E or better).

### San Tomas Expressway and Stevens Creek Boulevard\*

**Impact:** This CMP intersection is expected to operate at an unacceptable level of service (LOS F) during the PM peak hour under background conditions, and the addition of traffic under the cumulative scenario would cause the critical-movement delay at the intersection to increase by four or more seconds and the volume-to-capacity ratio (V/C) to increase by .01 or more. This constitutes a significant cumulative impact under the CMP definition.

**Mitigation:** The significant cumulative impact at this intersection could be satisfactorily mitigated by the addition of a fourth through lane on the north approach. This improvement was identified as a Tier 1A priority in the Comprehensive County Expressway Planning Study. With this improvement, the intersection would continue to operate at LOS F. However, the average intersection delay would be less than that under background conditions.



## McCarthy Boulevard/O'Toole Avenue and Montague Expressway\*

**Impact:** This CMP intersection is expected to operate at an acceptable level of service (LOS D) during the AM peak hour under background conditions, and the addition of traffic under the cumulative scenario would cause the intersection to degrade to an unacceptable LOS F. During the PM peak hour, the intersection is expected to operate at an unacceptable level of service (LOS F) under background conditions and the addition of traffic under the cumulative scenario would cause the critical-movement delay at the intersection to increase by four or more seconds and the volume-to-capacity ratio (V/C) to increase by .01 or more. These constitute significant cumulative impacts to the intersection under the City of San Jose and CMP definitions.

**Mitigation:** The significant cumulative impact at this intersection could be satisfactorily mitigated by constructing a “square-loop” interchange to replace the at-grade intersection. The interchange would eliminate the conflicting movements at the intersection and allow for uninterrupted flow along Montague Expressway. The Comprehensive County Expressway Planning Study identified this improvement as a Tier 1B improvement. This improvement also is identified in the North San Jose Deficiency Plan.

## Montague Expressway and Trimble Road\*

**Impact:** This CMP intersection is expected to operate at an unacceptable level of service (LOS F) during the PM peak hour under background conditions. The addition of traffic under the cumulative scenario would cause the intersection’s average critical delay to increase by four or more seconds and the volume-to-capacity ratio (V/C) to increase by 0.01 or more. This constitutes a significant cumulative impact to the intersection under the City of San Jose and CMP definitions.

**Mitigation:** The significant cumulative impact at this intersection could be satisfactorily mitigated by the construction of the Trimble flyover. The flyover would replace the triple left-turn lanes from westbound Montague Expressway to southbound Trimble Road. The flyover project also includes other modifications to the intersection including the elimination of the driveway that currently forms the north leg. This improvement is identified in the Comprehensive County Expressway Planning Study as a Tier 1B improvement. The flyover improvement also is identified in the North San Jose Deficiency Plan.

## Plumeria Drive/River Oaks Parkway and Montague Expressway

**Impact:** This intersection is expected to operate at an acceptable level of service (LOS D) during the AM and PM peak hours under background conditions, and the addition of traffic under the cumulative scenario would cause the intersection to degrade to LOS E. This constitutes a significant cumulative impact to the intersection under the City of San Jose’s definition.

**Mitigation:** There are no feasible improvements that can be implemented at this intersection. Therefore, the cumulative impact is considered significant and unavoidable.



## Zanker Road and Montague Expressway\*

**Impact:** This CMP intersection is expected to operate at LOS E during the AM peak hour under background conditions, and the addition of traffic under the cumulative scenario would cause the intersection to degrade to an unacceptable LOS F. During the PM peak hour, the intersection is expected to operate at an unacceptable level of service (LOS F) under background conditions. The additional traffic projected under the cumulative scenario would cause the critical-movement delay at the intersection to increase by four or more seconds and the volume-to-capacity ratio (V/C) to increase by .01 or more. These constitute significant cumulative impacts to the intersection under the City of San Jose and CMP definitions.

**Mitigation:** The cumulative impact at this intersection could be partially mitigated by adding a second left-turn lane on the north and south Zanker Road approaches. The City of San Jose has identified these improvements as part of the Zanker Road widening project. The recommended mitigation would reduce the average delay for vehicular traffic; however, the intersection would continue to operate at unacceptable levels (LOS F) with average delays that are greater than that under background conditions. There are no further feasible improvements that can be implemented to improve intersection levels of service to acceptable levels.

## North First Street and Montague Expressway\*

**Impact:** This CMP intersection is expected to operate at an unacceptable level of service (LOS F) during the AM and PM peak hour under background conditions. The addition of traffic under cumulative scenario conditions would cause the intersection's average critical delay to increase by four or more seconds and the volume-to-capacity ratio (V/C) to increase by 0.01 or more during both the AM and PM peak hours. These constitute significant impacts to the intersection under the City of San Jose and CMP definitions.

**Mitigation:** The significant cumulative impact at this intersection could be partially mitigated by adding a fourth through lane on westbound Montague Expressway. This improvement is planned as part of the Montague Expressway widening project identified as a Tier 1-A improvement by the Comprehensive County Expressway Planning Study. The improvement also is identified in the North San Jose Deficiency Plan. The recommended mitigation measure would reduce the average delay for vehicular traffic; however, the intersection would continue to operate at an unacceptable level (LOS F) with average delays that are greater than that under background conditions. There are no further feasible improvements that can be implemented to improve intersection levels of service to acceptable levels.

## San Tomas Expressway and Moorpark Avenue\*

**Impact:** This CMP intersection is expected to operate at an unacceptable level of service (LOS E) during the AM peak hour under background conditions. The addition of traffic under the cumulative scenario would cause the critical-movement delay at the intersection to increase by four or more seconds and the volume-to-capacity ratio (V/C) to increase by



.01 or more. This constitutes a significant impact to the intersection under the City of San Jose's definition.

**Mitigation:** The significant cumulative impact at this intersection could be satisfactorily mitigated by adding a fourth through lane to the northbound approach. This improvement was identified as a Tier 1A priority in the Comprehensive County Expressway Planning Study. With the improvement, the intersection would operate at acceptable levels (LOS D).



## **6.**

# **Reduced Project Alternative**

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This chapter describes the methodology used to analyze the reduced project alternative and presents the results of the analysis. The reduced project alternative proposes 1,500,000 square feet of office space at the project location identified in Chapter 1. The site access under the reduced project alternative is assumed to be similar to that identified for the project in Chapter 1.

### **Significant Impact Criteria**

The potential intersection impacts of the reduced project alternative were evaluated in accordance with the City of Santa Clara Level of Service standards, the City of San Jose Level of Service standards, and the CMP Level of Service standards. Freeway impacts were identified based on the significance criteria set forth in the CMP.

### **Transportation Network under the Reduced Project Alternative**

It is assumed in this analysis that the transportation network under the reduced project alternative conditions would be the same as described under background conditions.

### **Reduced Project Alternative Traffic Estimates**

It is estimated that the 1,500,000 square foot office development proposed under the reduced project alternative would generate a total of 10,734 daily vehicle trips with 1,637 trips in the AM peak hour and 1,759 trips in the PM peak hour. After applying the existing trip credits, the project would generate 4,415 daily trips, with 713 net trips (640 inbound and 73 outbound) occurring during the AM peak hour and 893 net trips (156 inbound and 737 outbound) occurring during the PM peak hour. The trip generation estimates for the reduced project alternative are presented in Table 14.





**Table 14**  
**Trip Generation Estimates for the Reduced Project Alternative**

Land Use	Size	Daily		AM Peak Hour				PM Peak Hour			
		Rate <sup>1</sup>	Trips	Rate <sup>1</sup>	In	Out	Total	Rate <sup>1</sup>	In	Out	Total
Proposed Office	1,500,000 s.f.	7.16	10,734	1.09	1,441	196	1,637	1.17	299	1,460	1,759
Existing Office	(509,862) s.f.	9.17	(4,676)	1.35	(607)	(83)	(690)	1.27	(111)	(539)	(650)
Existing R&D	(181,352) s.f.	9.06	(1,643)	1.29	(194)	(40)	(234)	1.19	(32)	(184)	(216)
<b>NET PROJECT TRIPS</b>			<b>4,415</b>		<b>640</b>	<b>73</b>	<b>713</b>		<b>156</b>	<b>737</b>	<b>893</b>

<sup>1</sup>Per 1,000 square feet.

Source: ITE Trip Generation, Seventh Edition, 2003. Land Use (710) General Office Building, (760) Research and Development Center.

The trip distribution for the reduced project alternative is assumed to be the same as that estimated for the proposed project. The net peak-hour trips associated with the reduced project alternative were added to the transportation network in accordance with the distribution pattern discussed above. A tabular summary of traffic at each study intersection under the reduced project alternative is contained in Appendix C.

## Reduced Project Traffic Volumes

Trips generated by the reduced project alternative were added to background traffic volumes to obtain background plus reduced project traffic volumes.

## Reduced Project Intersection Levels of Service

The results of the intersection level of service analysis under the reduced project alternative are summarized in Table 15. The results show that the following intersections would operate at unacceptable levels of service under the reduced project alternative:

Great America Parkway and Mission College Boulevard (CMP)	PM Peak Hour
De La Cruz Boulevard and Central Expressway (CMP)	PM Peak Hour
San Tomas Expressway and El Camino Real (CMP)	PM Peak Hour
San Tomas Expressway and Benton Street (Santa Clara)	AM Peak Hour
San Tomas Expressway and Homestead Road (CMP)	AM and PM Peak Hours
San Tomas Expressway and Saratoga Avenue (CMP)	AM and PM Peak Hours
San Tomas Expressway and Stevens Creek Blvd. (CMP)	PM Peak Hours
McCarthy Blvd/O'Toole Av. and Montague Expwy. (San Jose and CMP)	PM Peak Hour
Montague Expressway and Trimble Road (San Jose and CMP)	PM Peak Hour
Zanker Road and Montague Expressway (San Jose and CMP)	AM and PM Peak Hours
North First Street and Montague Expressway (San Jose and CMP)	AM and PM Peak Hours
San Tomas Expressway and Moorpark Avenue (San Jose)	AM Peak Hour



**Table 15**  
**Reduced Project Intersection Levels of Service**

Study Intersection	Peak Hour	Background		Reduced Project Alternative				Mitigated	
		Avg. Del.	LOS	Avg. Del.	LOS	Incr. In Crit. Del.	Incr. In Crit. V/C	Avg. Del.	LOS
<b>Santa Clara Intersections</b>									
1 Great America Parkway & Tasman Drive*	AM	25.6	C	25.6	C	0.0	0.001		
	PM	29.5	C	29.5	C	0.0	0.001		
2 Great America Parkway & Mission College Boulevard*	AM	41.4	D	41.4	D	0.0	0.002		
	PM	78.7	E	78.7	E	0.1	0.000		
3 Bowers Avenue & US 101 SB Ramps*	AM	25.2	C	25.2	C	0.0	0.002		
	PM	10.4	B	10.4	B	0.0	0.000		
4 Bowers Avenue & Augustine Drive	AM	24.7	C	24.8	C	0.0	0.000		
	PM	51.6	D	51.8	D	0.5	0.002		
5 Bowers Avenue & Scott Boulevard*	AM	30.7	C	30.7	C	0.0	0.001		
	PM	32.6	C	32.7	C	0.1	0.003		
6 Bowers Avenue & Central Expressway*	AM	57.7	E	58.5	E	1.4	0.010		
	PM	58.2	E	59.3	E	2.0	0.014		
7 Bowers Avenue & Walsh Avenue/Kifer Road	AM	16.7	B	16.9	B	0.1	0.011		
	PM	20.3	C	20.8	C	0.2	0.003		
8 Bowers Avenue & Monroe Street	AM	29.9	C	30.2	C	0.2	0.008		
	PM	34.4	C	34.6	C	0.4	0.011		
9 Oakmead Parkway & Central Expressway*	AM	23.8	C	23.8	C	0.1	0.003		
	PM	29.8	C	30.3	C	0.2	0.008		
10 Scott Boulevard & Central Expressway*	AM	48.1	D	48.5	D	-0.1	0.001		
	PM	39.4	D	39.4	D	0.0	0.013		
11 Lafayette Street & Central Expressway*	AM	54.5	D	54.7	D	0.0	0.001		
	PM	53.8	D	54.1	D	0.0	0.004		
12 De La Cruz Boulevard & Central Expressway*	AM	48.1	D	48.3	D	0.3	0.006		
	PM	86.0	F	83.1	F	3.9	0.011		
13 Lick Mill Boulevard & Montague Expressway	AM	24.6	C	24.5	C	-0.2	0.012		
	PM	20.0	B	19.9	B	0.0	0.004		
14 De La Cruz Boulevard/Agnew Road & Montague Expressway*	AM	44.0	D	44.1	D	-0.1	0.012		
	PM	40.5	D	40.5	D	0.0	0.003		
15 Mission College Boulevard & Montague Expressway*	AM	76.0	E	76.2	E	0.1	0.000		
	PM	43.5	D	43.7	D	0.3	0.003		
16 San Tomas Expressway & Scott Boulevard*	AM	36.8	D	36.5	D	0.0	0.003		
	PM	60.5	E	61.3	E	1.5	0.007		
17 San Tomas Expressway & Walsh Avenue	AM	37.3	D	41.2	D	4.2	0.026		
	PM	45.9	D	53.7	D	11.6	0.109		
18 San Tomas Expressway & Monroe Street*	AM	46.9	D	51.4	D	6.3	0.036		
	PM	43.4	D	44.5	D	1.8	0.032		
19 San Tomas Expressway & Cabrillo Avenue	AM	25.6	C	26.6	C	1.4	0.027		
	PM	25.8	C	26.2	C	0.6	0.030		
20 San Tomas Expressway & El Camino Real*	AM	66.3	E	71.2	E	9.0	0.033	56.7	E
	PM	77.6	E	81.9	F	6.4	0.027	69.3	E
21 San Tomas Expressway & Benton Street	AM	87.6	F	97.6	F	13.8	0.031	36.1	D
	PM	46.6	D	52.8	D	9.5	0.037	53.1	D
22 San Tomas Expressway & Homestead Road*	AM	112.0	F	122.4	F	14.7	0.033	53.0	D
	PM	98.0	F	107.1	F	14.2	0.035	53.7	D
23 Kiely Boulevard & Homestead Road	AM	29.0	C	29.1	C	0.1	0.003		
	PM	32.5	C	32.6	C	0.3	0.004		
24 San Tomas Expressway & Forbes Avenue	AM	19.4	B	20.7	C	1.7	0.026		
	PM	14.5	B	16.2	B	2.5	0.031		
25 San Tomas Expressway & Pruneridge Avenue	AM	56.0	E	60.2	E	5.7	0.027		
	PM	49.8	D	51.9	D	3.2	0.025		
26 San Tomas Expressway & Saratoga Avenue*	AM	72.8	E	80.7	F	12.2	0.034	59.8	E
	PM	81.9	F	86.9	F	8.9	0.022	72.2	E
27 San Tomas Expressway & Stevens Creek Boulevard*	AM	53.7	D	54.4	D	1.1	0.014		
	PM	115.9	F	117.9	F	2.9	0.011		
28 Saratoga Avenue & Pruneridge Avenue	AM	20.0	B	20.0	C	0.0	0.003		
	PM	21.0	C	21.0	C	0.0	0.006		
29 Winchester Boulevard & Pruneridge Avenue/Hedding Street	AM	23.2	C	24.7	C	2.0	-0.001		
	PM	30.0	C	30.4	C	0.6	0.011		
30 Winchester Boulevard & Newhall Street	AM	24.2	C	24.5	C	0.2	0.015		
	PM	20.4	C	20.6	C	0.2	0.010		

**Table 15 (continued)**  
**Reduced Project Intersection Levels of Service**

Study Intersection	Peak Hour	Background		Reduced Project Alternative				Mitigated	
		Avg. Del.	LOS	Avg. Del.	LOS	Incr. In Crit. Del.	Incr. In Crit. V/C	Avg. Del.	LOS
<b>Santa Clara Intersections (Continued)</b>									
31 Saratoga Avenue & Newhall Street/Scott Boulevard	AM	25.8	C	25.9	C	0.2	0.008		
	PM	23.6	C	23.6	C	0.0	0.005		
32 Scott Boulevard & Homestead Road	AM	21.0	C	20.9	C	-0.1	0.008		
	PM	23.4	C	23.3	C	-0.1	0.005		
33 Scott Boulevard & Benton Street	AM	18.5	B	18.4	B	-0.1	0.006		
	PM	14.0	B	14.1	B	0.0	0.006		
34 Scott Boulevard & El Camino Real*	AM	34.0	C	34.1	C	0.0	0.004		
	PM	39.1	D	39.2	D	0.2	0.003		
35 Scott Boulevard & Monroe Street	AM	28.7	C	29.1	C	0.2	0.010		
	PM	25.7	C	26.0	C	0.5	0.006		
36 Scott Boulevard & Martin Avenue	AM	17.1	B	17.3	B	-0.1	0.006		
	PM	21.9	C	22.0	C	0.0	0.004		
37 Scott Boulevard & Walsh Avenue	AM	22.9	C	25.6	C	15.1	0.051		
	PM	27.5	C	28.8	C	1.7	0.025		
38 Lafayette Street & Walsh Avenue	AM	16.2	B	16.4	B	0.0	0.000		
	PM	20.9	C	21.9	C	1.4	0.022		
39 Lafayette Street & Martin Avenue	AM	19.3	B	19.6	B	0.4	0.007		
	PM	19.5	B	19.6	B	0.2	0.010		
40 Lafayette Street & Reed Street	AM	8.3	A	8.3	A	0.1	0.004		
	PM	16.6	B	16.7	B	0.1	0.008		
41 Lafayette Street & El Camino Real*	AM	46.3	D	46.5	D	0.3	0.003		
	PM	41.5	D	41.6	D	0.1	0.005		
42 Monroe Street & El Camino Real*	AM	38.6	D	38.7	D	0.2	0.011		
	PM	36.5	D	37.0	D	0.6	0.014		
43 De La Cruz Boulevard & Reed Street	AM	11.1	B	11.2	B	0.1	0.007		
	PM	13.7	B	14.0	B	0.4	0.010		
44 De La Cruz Boulevard & Martin Avenue	AM	29.2	C	29.3	C	0.0	0.003		
	PM	29.2	C	29.4	C	0.1	0.005		
45 East Signalized Driveway & Walsh Avenue	AM	9.4	A	10.1	B	1.2	0.120		
	PM	23.0	C	26.2	C	3.7	0.067		
46 West Site Driveway & Walsh Avenue (unsignalized)	AM	11.7	B	0.6	B	NA	NA		
	PM	9.7	A	0.9	B	0.3	0.000		
47 Northwestern Parkway & Walsh Avenue (unsignalized)	AM	15.2	C	1.6	B	NA	NA		
	PM	15.6	C	3.1	B	0.8	0.000		
48 Northwestern Parkway & Condensa Street (unsignalized)	AM	10.0	B	3.5	A	NA	NA		
	PM	9.4	A	8.1	B	2.1	0.000		
49 San Tomas Expressway & Site Driveway (unsignalized)	AM	9.7	A	0.6	A	NA	NA		
	PM	12.4	B	6.7	C	3.7	0.000		
<b>San Jose Intersections</b>									
50 McCarthy Boulevard/O'Toole Avenue & Montague Expressway*	AM	44.4	D	44.6	D	0.5	0.007	27.9	C
	PM	146.6	F	150.1	F	5.3	0.010	29.4	C
51 Montague Expressway & Trimble Road*	AM	32.2	C	32.2	C	0.1	0.002	24.4	C
	PM	127.5	F	131.0	F	4.4	0.011	35.3	C
52 Montague Expressway & Plumeria Drive/River Oaks Parkway	AM	44.5	D	44.3	D	-0.3	0.007		
	PM	52.5	D	52.3	D	-0.2	0.009		
53 Zanker Road & Montague Expressway*	AM	65.4	E	66.2	E	1.4	0.008		
	PM	98.2	F	98.3	F	-1.0	0.005		
54 North First Street & Montague Expressway*	AM	212.8	F	217.8	F	7.2	0.016	170.2	F
	PM	273.9	F	279.8	F	2.5	0.006	244.2	F
55 Saratoga Avenue & Stevens Creek Boulevard*	AM	34.6	C	34.6	C	0.2	0.009		
	PM	38.7	D	38.9	D	0.2	0.011		
56 Saratoga Avenue & Kiely Boulevard*	AM	37.8	D	37.7	D	0.0	0.001		
	PM	44.3	D	44.6	D	0.5	0.007		
57 Saratoga Avenue & I-280 NB Ramps*	AM	30.6	C	30.5	C	0.0	0.001		
	PM	24.5	C	24.4	C	-0.2	0.005		
58 Saratoga Avenue & I-280 SB Ramps*	AM	32.8	C	33.0	C	0.4	0.003		
	PM	45.0	D	45.3	D	0.9	0.003		
59 San Tomas Expressway & Moorpark Avenue*	AM	60.5	E	62.3	E	2.5	0.010		
	PM	44.8	D	45.2	D	-0.1	0.002		

\* Denotes CMP Intersection

Note: Signalized delay and LOS are average of all movements. Unsignalized delay and LOS are for the worst controlled lane group.

**Bold** indicates substandard level of service

**□** indicates a significant impact

## Reduced Project Intersection Impacts and Mitigations

Table 16 presents a comparison of the significant intersection impacts caused by the reduced project versus that caused by the proposed project. While the proposed project was found to cause a significant impact on 10 intersections, the reduced project alternative would cause a significant impact at only the following 7 intersections:

- San Tomas Expressway and El Camino Real (CMP)
- San Tomas Expressway and Benton Street (Santa Clara)
- San Tomas Expressway and Homestead Road (CMP)
- San Tomas Expressway and Saratoga Avenue (CMP)
- McCarthy Boulevard/O'Toole Avenue and Montague Expressway (San Jose and CMP)
- Montague Expressway and Trimble Road (San Jose and CMP)
- North First Street and Montague Expressway (San Jose and CMP)

The improvements necessary to mitigate the significant impacts at these intersections under the reduced project alternative are the same as those previously identified in Chapter 4.

The following significant intersection impacts identified under project conditions would be avoided under the reduced project alternative:

- De La Cruz Boulevard and Central Expressway (CMP)
- San Tomas Expressway and Stevens Creek Boulevard (CMP)

## Freeway Segment Analysis

Traffic volumes on the study freeway segments under the reduced project alternative were estimated by adding reduced project trips to the existing volumes obtained from the 2006 CMP Annual Monitoring Report. The results of the freeway analysis are summarized in Table 17. The results of the CMP freeway analysis show that the reduced project alternative would cause significant increases in traffic volumes (more than one percent of freeway capacity) on the following two study freeway segments:

- US 101, northbound between SR 87 and De La Cruz Boulevard (AM Peak Hour)
- US 101, southbound between De La Cruz Boulevard and SR 87 (PM Peak Hour)

Because it is not feasible for an individual development project to bear the responsibility of widening the freeway, and neither Caltrans nor VTA have developed any freeway widening project towards which the project may contribute, the significant impacts on the directional freeway segments identified above would be considered significant and unavoidable.

The following significant freeway impacts identified under project conditions would be avoided under the reduced project alternative:

- US 101, northbound between Old Bayshore Highway and North First Street (AM Peak Hour)
- US 101, northbound between North First Street and SR 87 (AM Peak Hour)
- US 101, southbound between Montague Expressway and De La Cruz Boulevard (PM Peak Hour)
- US 101, southbound between SR 87 and North First Street (PM Peak Hour)
- US 101, southbound between North First Street and Old Bayshore Highway (PM Peak Hour)
- US 101, southbound between Old Bayshore Highway and I-880 (PM Peak Hour)



Table 16

## Comparison of Intersection Impacts under the Proposed Project and Reduced Project Alternative

Study Intersection	Background						Project						Mitigated Project						Reduced Project Alternative						Mitigated Project					
	Peak Hour	Avg.		LOS	Del.	LOS	Incr.		LOS	Del.	LOS	Incr.		LOS	Del.	LOS	Avg.		Del.	LOS	Del.	LOS	Incr.		Del.	LOS	Del.	LOS		
		Del.	LOS				Crit.	V/C				Crit.	V/C				Avg.	Crit.					V/C	Avg.					Crit.	V/C
<b>Santa Clara Intersections</b>																														
12 De La Cruz Boulevard & Central Expressway*	AM	48.1	D	48.5	D	0.5	0.009					44.5	D	48.3	D	0.3	0.006													
	PM	86.0	F	92.0	F	7.6	0.018					56.6	E	83.1	F	3.9	0.011													
17 San Tomas Expressway & El Camino Real*	AM	66.3	E	74.2	E	14.3	0.050					58.0	E	71.2	E	9.0	0.033													
	PM	77.6	E	84.7	F	10.4	0.042					71.1	E	81.9	F	6.4	0.027													
21 San Tomas Expressway & Benton Street	AM	87.6	F	103.1	F	21.3	0.048					36.7	D	97.6	F	13.8	0.031													
	PM	46.6	D	57.4	E	16.6	0.059					57.7	E	52.8	D	9.5	0.037													
22 San Tomas Expressway & Homestead Road*	AM	112.0	F	127.9	F	22.4	0.050					54.2	D	122.4	F	14.7	0.033													
	PM	98.0	F	112.5	F	22.6	0.055					54.6	D	107.1	F	14.2	0.035													
25 San Tomas Expressway & Saratoga Avenue*	AM	72.8	E	85.4	F	19.4	0.052					61.9	E	80.7	F	12.2	0.034													
	PM	81.9	F	89.7	F	13.8	0.034					74.3	E	86.9	F	8.9	0.022													
26 San Tomas Expressway & Stevens Creek Boulevard*	AM	53.7	D	54.8	D	1.6	0.022					54.7	D	54.4	D	1.1	0.014													
	PM	115.9	F	119.1	F	4.7	0.018					101.1	F	117.9	F	2.9	0.011													
<b>San Jose Intersections</b>																														
50 McCarthy Boulevard/O'Toole Avenue & Montague Expressway*	AM	44.4	D	44.8	D	0.8	0.011					27.9	C	44.6	D	0.5	0.007													
	PM	146.6	F	152.1	F	8.2	0.016					29.4	C	150.1	F	5.3	0.010													
54 Montague Expressway & Trimble Road*	AM	32.2	C	32.2	C	0.2	0.004					24.4	C	32.2	C	0.1	0.002													
	PM	127.5	F	132.9	F	6.9	0.018					35.4	D	131.0	F	4.4	0.017													
59 North First Street & Montague Expressway*	AM	212.8	F	220.5	F	11.0	0.024					172.0	F	217.8	F	7.2	0.016													
	PM	273.9	F	283.2	F	3.8	0.009					246.7	F	279.8	F	2.5	0.006													

Note: Intersections not listed in the above table do not have a significant impact under either the proposed project or the reduced project alternative.

\* Denotes CMP Intersection

**Bold** indicates substandard level of service

indicates a significant impact



Table 17

## Freeway Segment Levels of Service under the Reduced Project Alternative

Existing Plus Reduced Project Trips														HOV Lane				Reduced Project Trips			
Freeway	Segment	Direction	Peak Hour	Ave. Speed/ (vph)	# of Lanes	Capacity (vph)	Volume/ (vph)	Density	LOS	Ave. Speed/ (vph)	# of Lanes	Capacity (vph)	Volume/ (vph)	Density	LOS	Total Volume	Mixed-Flow		HOV Lane		
																	%	Volume	%	Capacity	
US 101	Oakland Rd	NB	AM	7	3	6,900	2,783	132.5	F	32	1	1,800	1,955	81.1	F	38	33	0.5%	5	0.3%	NO
US 101	I-880	NB	PM	66	3	6,900	4,168	21.0	C	67	1	1,800	541	8.1	A	9	8	0.1%	1	0.1%	NO
US 101	I-880	NB	AM	14	3	6,900	4,199	100.0	F	47	1	1,800	2,167	46.1	E	46	39	0.6%	7	0.4%	NO
US 101	Old Bayshore Hwy	NB	PM	66	3	6,900	4,559	23.0	C	67	1	1,800	672	10.0	A	11	9	0.1%	2	0.1%	NO
US 101	Old Bayshore Hwy	NB	AM	18	3	6,900	4,746	87.9	F	15	1	1,800	1,438	95.9	F	54	46	0.7%	8	0.4%	NO
US 101	N. First St	NB	PM	66	3	6,900	5,551	28.0	D	87	1	1,800	802	12.0	B	13	11	0.2%	2	0.1%	NO
US 101	N. First St	NB	AM	25	3	6,900	5,533	73.8	F	19	1	1,800	1,629	85.7	F	62	53	0.8%	9	0.5%	NO
US 101	SR 87	PM	67	3	6,900	3,033	15.1	B	67	1	1,800	602	9.0	A	15	13	0.2%	2	0.1%	NO	
US 101	De La Cruz Blvd	NB	AM	14	3	6,900	4,266	101.6	F	21	1	1,800	1,991	80.5	F	77	66	1.0%	11	0.6%	YES
US 101	De La Cruz Blvd	NB	PM	58	3	6,900	6,626	38.1	D	67	1	1,800	743	11.1	B	19	16	0.2%	3	0.2%	NO
US 101	De La Cruz Blvd	NB	AM	35	3	6,900	6,246	53.4	E	62	1	1,800	2,178	35.1	D	54	46	0.7%	8	0.4%	NO
US 101	Montague Expwy / San	NB	PM	45	3	6,900	6,491	48.1	E	67	1	1,800	802	12.0	B	13	11	0.2%	2	0.1%	NO
US 101	Montague Expwy / San	NB	AM	52	3	6,900	6,515	35.0	D	66	1	1,800	1,451	22.0	C	6	5	0.1%	1	0.0%	NO
US 101	Bowers Ave/Great Arme	NB	PM	65	3	6,900	5,713	29.3	D	87	1	1,800	679	10.1	A	82	53	0.8%	9	0.5%	NO
US 101	Bowers Ave/Great Arme	NB	AM	61	3	6,900	6,598	36.1	D	66	1	1,800	1,551	25.0	C	9	8	0.1%	1	0.1%	NO
US 101	Lawrence Expwy	NB	PM	42	3	6,900	6,376	50.6	E	67	1	1,800	683	13.2	B	69	76	1.1%	13	0.7%	NO
US 101	Lawrence Expwy	NB	AM	51	3	6,900	6,588	43.1	D	66	1	1,800	1,581	24.0	C	9	8	0.1%	1	0.1%	NO
US 101	Fair Oaks Ave	NB	PM	51	3	6,900	5,957	62.1	F	52	1	1,800	2,181	41.9	D	8	7	0.1%	1	0.1%	NO
US 101	Fair Oaks Ave	NB	AM	32	3	6,900	6,118	31.4	D	67	1	1,800	952	14.2	B	80	68	1.0%	12	0.6%	NO
US 101	Mathilda Ave	NB	AM	45	3	6,900	6,486	48.0	E	55	1	1,800	2,201	40.0	D	7	6	0.1%	1	0.1%	NO
US 101	Mathilda Ave	NB	PM	68	3	6,900	5,211	26.3	D	63	1	1,800	2,150	34.1	D	71	61	0.9%	10	0.6%	NO
US 101	SR 237	NB	AM	17	3	6,900	4,645	91.1	F	66	1	1,800	1,781	27.0	D	6	5	0.1%	1	0.0%	NO
US 101	SR 237	NB	PM	36	3	6,900	6,100	56.5	E	65	1	1,800	1,958	30.1	D	58	50	0.7%	8	0.5%	NO
US 101	Moffett Blvd	NB	AM	38	3	6,900	4,754	88.0	F	25	1	1,800	1,831	73.2	F	5	4	0.1%	1	0.0%	NO
US 101	SR 85	NB	PM	24	3	6,900	5,372	74.6	F	66	1	1,800	1,657	28.1	D	49	42	0.6%	7	0.4%	NO
US 101	SR 85	NB	AM	54	3	6,900	6,675	41.2	D	67	1	1,800	1,216	18.1	C	41	35	0.5%	6	0.3%	NO
US 101	Moffett Blvd	SB	PM	57	3	6,900	6,675	39.1	D	65	1	1,800	1,551	30.0	D	10	9	0.1%	1	0.1%	NO
US 101	Moffett Blvd	SB	AM	57	3	6,900	6,712	39.3	D	66	1	1,800	1,657	25.1	C	49	42	0.6%	7	0.4%	NO
US 101	SR 237	SB	PM	83	3	6,900	6,440	34.1	D	66	1	1,800	1,322	20.0	C	12	10	0.1%	2	0.1%	NO
US 101	SR 237	SB	AM	66	3	6,900	5,002	25.3	C	66	1	1,800	1,329	20.1	C	61	52	0.8%	9	0.5%	NO
US 101	Mathilda Ave	SB	PM	66	3	6,900	4,963	25.1	C	66	1	1,800	1,452	22.0	C	15	13	0.2%	2	0.1%	NO
US 101	Mathilda Ave	SB	AM	65	3	6,900	6,109	31.3	D	66	1	1,800	1,460	22.1	C	69	59	0.9%	10	0.6%	NO
US 101	Fair Oaks Ave	SB	PM	51	3	6,900	6,595	43.1	D	87	1	1,800	1,072	16.0	B	77	15	0.2%	2	0.1%	NO
US 101	Fair Oaks Ave	SB	AM	62	3	6,900	6,576	35.4	D	67	1	1,800	1,221	18.2	C	77	66	1.0%	11	0.6%	NO
US 101	Lawrence Expwy	SB	PM	20	3	6,900	4,936	82.3	F	66	1	1,800	1,783	27.0	D	19	16	0.2%	3	0.2%	NO
US 101	Lawrence Expwy	SB	AM	65	3	6,900	6,116	31.4	D	67	1	1,800	1,081	16.1	B	77	66	1.0%	11	0.6%	NO
US 101	Bowers Ave/Great Arme	SB	PM	9	3	6,900	3,306	122.5	F	39	1	1,800	2,073	53.1	E	18	16	0.2%	3	0.2%	NO
US 101	Bowers Ave/Great Arme	SB	AM	66	3	6,900	4,596	23.2	C	67	1	1,800	878	13.1	B	54	46	0.7%	8	0.4%	NO
US 101	Montague Expwy/San T	SB	PM	10	3	6,900	3,491	116.4	F	32	1	1,800	1,952	61.0	F	13	11	0.2%	2	0.1%	NO
US 101	Montague Expwy/San T	SB	AM	66	3	6,900	5,855	27.0	D	67	1	1,800	741	11.1	B	6	5	0.1%	1	0.0%	NO
US 101	De La Cruz Blvd	SB	PM	13	3	6,900	4,033	103.4	F	50	1	1,800	2,209	44.2	D	62	53	0.8%	9	0.5%	NO
US 101	De La Cruz Blvd	SB	AM	66	3	6,900	4,368	22.1	C	67	1	1,800	601	9.0	A	9	8	0.1%	1	0.1%	NO
US 101	SR 87	SB	PM	28	3	6,900	5,706	67.9	F	64	1	1,800	2,123	33.2	D	89	76	1.1%	13	0.7%	YES
US 101	SR 87	SB	AM	67	3	6,900	2,916	14.0	B	67	1	1,800	271	4.0	A	7	6	0.1%	1	0.1%	NO
US 101	N. First St	SB	PM	23	3	6,900	5,301	76.8	F	52	1	1,800	2,189	42.1	D	71	61	0.9%	10	0.6%	NO
US 101	N. First St	SB	AM	67	3	6,900	3,425	17.0	B	67	1	1,800	671	10.0	A	6	5	0.1%	1	0.0%	NO
US 101	Old Bayshore Hwy	SB	PM	11	3	6,900	3,683	111.6	F	29	1	1,800	1,899	65.5	F	62	53	0.8%	9	0.5%	NO
US 101	Old Bayshore Hwy	SB	AM	67	3	6,900	3,224	16.0	B	67	1	1,800	271	4.0	A	5	4	0.1%	1	0.0%	NO
US 101	I-880	SB	PM	11	3	6,900	3,745	113.5	F	33	1	1,800	1,988	60.2	F	53	45	0.7%	8	0.4%	NO
US 101	I-880	SB	AM	66	3	6,900	3,763	19.0	C	67	1	1,800	341	5.1	A	4	3	0.0%	1	0.0%	NO
SR 87	Skyport Dr	NB	PM	13	3	6,900	4,138	106.1	F	36	1	1,800	2,026	56.3	E	44	38	0.5%	6	0.4%	NO
SR 87	Skyport Dr	NB	AM	6	2	4,400	1,753	146.1	F	87	1	1,800	942	14.1	B	15	13	0.3%	2	0.1%	NO
SR 87	US 101	SB	PM	67	2	4,400	2,283	17.0	B	67	1	1,800	541	8.1	A	4	3	0.1%	1	0.0%	NO
SR 87	US 101	SB	AM	66	2	4,400	3,432	26.0	C	67	1	1,800	130	1.9	A	2	2	0.0%	0	0.0%	NO
SR 87	US 101	SB	PM	59	2	4,400	4,385	37.2	D	67	1	1,800	803	12.0	B	18	15	0.4%	3	0.1%	NO

/a/ Source: Santa Clara Valley Transportation Authority Congestion Management Program Monitoring Study, 2006.

Hexagon Transportation Consultants, Inc.

2600-2880 San Tomas Expressway and 2400 Condensa Street Office Development – Santa Clara, Ca

August 8, 2008.

## 7. Conclusions

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The potential impacts of the project were evaluated in accordance with the standards set forth by the City of Santa Clara and the Congestion Management Program (CMP) of Santa Clara County. The study included the analysis of AM and PM peak-hour traffic conditions for 55 signalized, 4 unsignalized intersections and 10 freeway segments.

The impacts of the project on intersections were identified on the basis of the City of Santa Clara level of service standards and the CMP level of service standards. Freeway impacts were identified based on the significance criteria set forth in the CMP. Project impacts on other transportation facilities, such as pedestrian facilities, bicycle facilities and transit, were determined on the basis of engineering judgment.

### Project Impacts on Intersection Levels of Service

The results of the intersection level of service analysis are summarized in Table ES 1. The level of service calculation sheets are included in Appendix D. Based on the intersection level of service analysis, the proposed project will have a significant impact at the following study intersections:

- De La Cruz Boulevard and Central Expressway
- San Tomas Expressway and El Camino Real
- San Tomas Expressway and Benton Street
- San Tomas Expressway and Homestead Road
- San Tomas Expressway and Saratoga Avenue
- San Tomas Expressway and Stevens Creek Boulevard
- McCarthy Blvd/O'Toole Avenue and Montague Expressway
- Montague Expressway and Trimble Road
- North First Street and Montague Expressway

The unsignalized study intersections, which are not subject to the City's level of service standard, are expected to continue to operate at LOS D or better. Therefore, no improvements are recommended at the unsignalized study intersections.





## Project Impacts on Freeway Segment Levels of Service

The proposed project would cause a significant impact on the study freeway segments:

- US 101, northbound between Old Bayshore Highway and North First Street
- US 101, northbound between North First Street and SR 87
- US 101, northbound between SR 87 and De La Cruz Boulevard
- US 101, southbound between Montague Expressway and De La Cruz Boulevard
- US 101, southbound between De La Cruz Boulevard and SR 87
- US 101, southbound between SR 87 and North First Street
- US 101, southbound between North First Street and Old Bayshore Highway
- US 101, southbound between Old Bayshore Highway and I-880

## Recommended Project Mitigation Measures

The following roadway improvements, if implemented, would satisfactorily mitigate significant project impacts.

***De La Cruz Boulevard and Central Expressway*** - Convert the existing HOV lane on eastbound Central Expressway to a mixed-flow lane.

***San Tomas Expressway and El Camino Real*** – Add a second left-turn lane to the east and west approaches.

***San Tomas Expressway and Benton Street*** – Add a fourth through lane to the south approach.

***San Tomas Expressway and Homestead Road*** – Add a fourth through lane to the north and south approaches.

***San Tomas Expressway and Saratoga Avenue*** - Add a second eastbound left-turn lane.

***San Tomas Expressway and Stevens Creek Boulevard*** - Add a fourth through lane on the north approach.

***McCarthy Boulevard/O'Toole Avenue and Montague Expressway*** – Construct a “square-loop” interchange to replace the at-grade intersection.

***Montague Expressway and Trimble Road*** – Construct the Trimble flyover replacing the triple left-turn lanes from westbound Montague Expressway to southbound Trimble Road.

***North First Street and Montague Expressway*** – Add a fourth westbound through lane.

The City of Santa Clara has a policy to collect a fee of \$1 per square foot of the project size for projects that have a significant impact on County expressways. The impact fee for this project would be given to Santa Clara County. The County may or may not elect to use these funds for the above-listed improvements.



Mitigation of significant project impacts on freeway segments would require roadway widening to construct additional through lanes, thereby increasing freeway capacity. Since it is not feasible for an individual development project to bear responsibility for implementing such extensive transportation system improvements due to constraints in acquisition and cost of right-of-way, and no comprehensive project to add through lanes has been developed by Caltrans or VTA for individual projects to contribute to, the significant impacts on the directional freeway segments identified above must be considered significant and unavoidable.

## **Other Transportation Issues**

### ***Intersection Operations Analysis***

The operations analysis is based on vehicle queuing for high demand turning movements at intersections. Intersections found to have a deficiency in the available turn pocket storage are described below.

#### **East Signalized Project Driveway and Walsh Avenue**

The existing 95<sup>th</sup> percentile queue (100 feet per lane) exceeds the existing left-turn storage capacity of the southbound approach (60 feet per lane) in the PM peak hour. The project site plan shows that the driveway throat length would be extended, which would increase the left-turn storage to 215 feet per lane. Yet, the increased storage would not be sufficient to accommodate the 95<sup>th</sup> percentile queue, which would reach 325 feet per lane with the project. During the peak periods within the PM peak hour, the queue frequently would extend past the end of the driveway impeding circulation on internal drive aisles. The storage deficiency on site is not expected to affect traffic operations on the public street network.

#### **San Tomas Expressway and Walsh Avenue**

The existing left-turn storage capacity on northbound San Tomas Expressway at Walsh Avenue (250 feet per lane) is not adequate to accommodate the existing 95<sup>th</sup> percentile queue (275 feet per lane) during the AM peak hour. The additional traffic generated under the proposed project would cause the 95<sup>th</sup> percentile queue length to increase to 650 feet per lane. There are two left-turn lanes and a raised median at this location. Lengthening the northbound left-turn pocket to accommodate the projected queue length would require widening the roadway. The existing right-of-way is adequate for this improvement.

Eastbound Walsh Avenue currently has only a single 135-foot left-turn lane at San Tomas Expressway. Under existing conditions, the eastbound left-turn pocket is inadequate to accommodate the 95<sup>th</sup> percentile queue of 500 feet per lane during the PM peak hour. The additional traffic generated under the proposed project would cause the 95<sup>th</sup> percentile queue length to increase to 875 feet per lane. The addition of a second eastbound left-turn lane is recommended to mitigate the significant impact on the intersection's level of service. Furthermore, it would help to alleviate the existing left-turn storage deficiency. Due to the proximity of this intersection with the signalized project driveway on Walsh Avenue, it is recommended that the dual left-turn lanes on eastbound Walsh Avenue at San Tomas Expressway be built side-by-side with the single westbound left-turn lane at the adjacent intersection. Although the side-by-side configuration would require more right-of-way than the current end-to-end configuration, it would maximize the queue storage area resulting in as much as 350 feet of queue storage per lane. Even so, the side-by-side dual left-turn lanes would fall short of the estimated 95<sup>th</sup> percentile queue of 475 feet per lane. It is recommended that the closely spaced intersections operate under close signal coordination to manage queues.



## ***Transit, Pedestrian and Bicycle Analysis***

It is concluded that the additional transit riders that may be generated by the proposed project could be accommodated by the existing transit service. Improvements are recommended to facilitate pedestrian travel to and from the nearby bus stops.

There are bus stops on San Tomas Expressway immediately adjacent to and across the street from the project site. Sidewalk segments connect the bus stops to the San Tomas/Walsh intersection. It is recommended that the sidewalk on the west side of San Tomas Expressway be extended northward along the length of the project frontage to Central Expressway. From there, the sidewalk should continue along the northern edge of the property adjacent to Central Expressway leading to a crosswalk across an internal roadway in order to connect to the existing sidewalk on the south side of the Condensa Street Bridge. The recommended sidewalks along the perimeter of the site would provide a direct route for people walking to and from the bus stops on San Tomas and Central Expressways.

There is also a bus stop on the north side of Walsh Avenue approximately 400 feet east of San Tomas Expressway. It is suggested that a crosswalk be added to the north leg of the San Tomas/Walsh intersection to increase the convenience of pedestrians traveling between the project site and the bus stops on the east side of San Tomas Expressway. In addition, a bus stop may be constructed along the project frontage on Walsh Avenue, which would further improve the convenience for transit riders and diminish the need to add a crosswalk at the San Tomas/Walsh intersection.

An inactive bus stop is located on Central Expressway approximately 200 feet east of Northwestern Parkway. A segment of sidewalk extends from this bus stop along Central Expressway and Northwestern Parkway to Condensa Street. While a sidewalk currently exists along the project frontage on the south side of Condensa Street, it ends at the western property line. In order to provide a safe and convenient pedestrian route between the project site and the bus stop on Central Expressway, it is recommended that the project extend the sidewalk westward along the south side of Condensa Street to Northwestern Parkway (a distance of approximately 250 feet). Furthermore, the sidewalk along Condensa Street should be extended eastward by roughly 100 feet in order to connect to the trail on the west side of the San Tomas Aquino Creek and to the existing sidewalk on the south side of the Condensa Street bridge.

The project proposes to construct a new pedestrian bridge over the San Tomas Aquino Creek to facilitate travel between the proposed office buildings on the east and west project sites. Aside from this feature, the preliminary site plan available at this date does not show pedestrian connections within the project sites. Pedestrian pathways should be included within the project sites to connect the buildings' main points of entry/exit with existing and recommended sidewalks and bus stops along adjacent roadways.

It is expected that bicycle trips would comprise no more than one percent of the total project-generated trips. Thus, the project could generate 14 new bicycle trips. The existing bicycle facilities would be adequate to serve the anticipated demand.

## **Site Access, On-Site Circulation and Parking**

### ***Site Access***

The project comprises two sites. The east project site, which is located between San Tomas Expressway and San Tomas Aquino Creek, would be served by three driveways. One driveway would be located on Walsh Avenue just east of San Tomas Aquino Creek. Like the existing driveway at the same location, this



driveway would allow both left and right turns into the site but would be limited to only right turns out of the site. The east site also would maintain the current full-access signalized driveway on Walsh Avenue. As shown on the site plan, the driveway would include three lanes outbound. The level of service calculation at this intersection assumes that the driveway will be striped to include an exclusive left-turn lane, a shared through/left-turn lane, and a right-turn lane. Although not necessary to achieve an acceptable level of service, it is recommended that the right-turn lane extend as far as the other lanes in order to minimize the proportion of time that it is blocked by queues in the adjacent lane. The project also proposes to utilize a right-turn-only driveway on San Tomas Expressway, which would be located approximately 50 feet south of an existing right-turn-only driveway. The slight shift in the driveway location would not have an appreciable effect on traffic operations.

The west project site, which is located immediately west of San Tomas Aquino Creek on Condensa Street, would be served by four full-access driveways on Condensa Street. In addition, the east and west sites are connected by a bridge over the San Tomas Aquino Creek, allowing vehicular and pedestrian access to and from one site through the other.

Each of the proposed driveway locations offers adequate sight distance in both directions. The project driveways should be free and clear of any obstructions to optimize sight distance. Any landscaping and signage near the driveways should be located in such a way to ensure an unobstructed view for drivers entering and exiting the site.

To determine if the site driveways are adequate for service vehicle access, the WB-40 and SU-30 AASHTO design vehicle turning specifications were checked against the driveway and roadway geometrics associated with the site. The site plan shows that the inbound lane at the signalized project driveway on Walsh Avenue would be only 12 feet wide with a raised curb and median on either side. The lane width should be increased to 15 feet to facilitate inbound truck movements. Because there are multiple outbound lanes at this driveway, trucks could negotiate outbound turn movements successfully by using more than one lane. Likewise, the width of both the inbound and outbound lanes at the western project driveway on Condensa Street also should be increased to 15 feet to accommodate truck movements.

### ***On-Site Circulation***

The drive aisles are shown to have a typical width of 25 feet, which would allow for adequate circulation and maneuvering for 90-degree parking stalls. The width of internal roadways, which varies from 24 to 30 feet, would be sufficient for two-way circulation. According to the site plan, the internal roadway network would not contain any dead-end drive aisles. The design and layout of the on-site roadways is generally adequate to accommodate circulation of passenger vehicles and emergency vehicles. Clear sight distance triangles should be provided where internal roadways are curved and at internal roadway junctions to optimize sight distance. Any landscaping and signage should be located in such a way to ensure an unobstructed view for drivers exiting the site. Provisions for truck loading are included at each of the proposed office buildings. The internal roadways are adequate to allow trucks to circulate to and from the loading areas within the site.

Each of the three proposed parking garages is shown to have two access points. Each garage access would have a single lane in each direction, which would be sufficient if vehicles are allowed to enter or exit the garage unimpeded. However, additional lanes and queue storage would be needed if the garage access is to be gated or controlled by some other means.



Overall, the site plan exhibits adequate site access and on-site circulation for motor vehicles. The City ultimately will determine the adequacy of the proposed driveways and internal street system design.

### **Parking**

As shown on Figure 2, the project would provide 7,050 parking stalls on site. The City of Santa Clara's zoning codes require 1 space per 300 s.f. of gross floor area for office space. The project would consist of 1,950,000 s.f. of office space. The total number of spaces required according to the City's code would be 6,500 spaces. Thus, the project would exceed the City's parking requirements.

## **Cumulative Impacts on Intersection Levels of Service**

The following study intersections would have a significant cumulative impact:

- Great America Parkway and Mission College Boulevard
- Bowers Avenue and Augustine Drive
- Bowers Avenue and Central Expressway
- De La Cruz Boulevard and Central Expressway
- Mission College Boulevard and Montague Expressway
- San Tomas Expressway and Scott Boulevard
- San Tomas Expressway and El Camino Real
- San Tomas Expressway and Benton Street
- San Tomas Expressway and Homestead Road
- San Tomas Expressway and Saratoga Avenue
- San Tomas Expressway and Stevens Creek Boulevard
- McCarthy Blvd/O'Toole Avenue and Montague Expressway
- Montague Expressway and Trimble Road
- Montague Expressway and Plumeria Drive/River Oaks Parkway
- Zanker Road and Montague Expressway
- North First Street and Montague Expressway
- San Tomas Expressway and Moorpark Avenue

The unsignalized intersections are expected to continue to operate with low to moderate levels of delay equivalent to LOS D or better. Therefore, no improvements are required.

## **Cumulative Mitigation Measures**

The following measures would satisfactorily mitigate many of the significant cumulative impacts on intersection levels of service described above:

***Great America Parkway and Mission College Boulevard*** – Add a third westbound left-turn lane.

***Bowers Avenue and Augustine Drive*** – Add a second southbound left-turn lane and convert the eastbound through lane and right-turn lane into a second left turn lane and a shared through-right-turn lane (partial mitigation).

***Bowers Avenue and Central Expressway*** – Convert the existing HOV lanes eastbound and westbound on Central Expressway to mixed-flow lanes.



***De La Cruz Boulevard and Central Expressway*** - Convert the existing HOV lane on eastbound Central Expressway to a mixed-flow lane.

***Mission College Boulevard/Thomas Road and Montague Expressway*** - Convert the innermost eastbound through lane to a third eastbound left-turn lane (partial mitigation) or construct a full interchange to replace the at-grade intersection (full mitigation).

***San Tomas Expressway and Scott Boulevard*** - Add a second right-turn lane on the east approach.

***San Tomas Expressway and El Camino Real*** - Add a second left-turn lane to the east and west approaches (partial mitigation) or construct a full interchange to replace the at-grade intersection (full mitigation).

***San Tomas Expressway and Benton Street*** - Add a fourth through lane to the north and south approaches.

***San Tomas Expressway and Homestead Road*** - Add a fourth through lane to the north and south approaches.

***San Tomas Expressway and Saratoga Avenue*** - Add a second eastbound left-turn lane and a fourth southbound through lane.

***San Tomas Expressway and Stevens Creek Boulevard*** - Add a fourth through lane on the north approach.

***McCarthy Boulevard/O'Toole Avenue and Montague Expressway*** - Construct a "square-loop" interchange to replace the at-grade intersection.

***Montague Expressway and Trimble Road*** - Construct the Trimble flyover replacing the triple left-turn lanes from westbound Montague Expressway to southbound Trimble Road.

***Plumeria Drive/River Oaks Parkway and Montague Expressway*** - No feasible improvements (significant unavoidable cumulative impact).

***Zanker Road and Montague Expressway*** - Add second northbound and southbound left turn lanes.

***North First Street and Montague Expressway*** - Add a fourth westbound through lane.

***San Tomas Expressway and Moorpark Avenue*** - Add a fourth through lane on the south approach.

## **Reduced Project Impacts and Mitigations**

While the proposed project was found to cause a significant impact on 10 intersections, the reduced project alternative would cause a significant impact at only the following 7 intersections:

San Tomas Expressway and El Camino Real (CMP)



San Tomas Expressway and Benton Street (Santa Clara)  
San Tomas Expressway and Homestead Road (CMP)  
San Tomas Expressway and Saratoga Avenue (CMP)  
McCarthy Boulevard/O'Toole Avenue and Montague Expressway (San Jose and CMP)  
Montague Expressway and Trimble Road (San Jose and CMP)  
North First Street and Montague Expressway (San Jose and CMP)

The improvements necessary to mitigate the significant impacts at these intersections under the reduced project alternative are the same as those previously identified in Chapter 4.

The following significant intersection impacts identified under project conditions would be avoided under the reduced project alternative:

De La Cruz Boulevard and Central Expressway (CMP)  
San Tomas Expressway and Stevens Creek Boulevard (CMP)

The results of the CMP freeway analysis show that the reduced project alternative would cause significant increases in traffic volumes (more than one percent of freeway capacity) on the following two study freeway segments:

US 101, northbound between SR 87 and De La Cruz Boulevard (AM Peak Hour)  
US 101, southbound between De La Cruz Boulevard and SR 87 (PM Peak Hour)

Because it is not feasible for an individual development project to bear the responsibility of widening the freeway, and neither Caltrans nor VTA have developed any freeway widening project towards which the project may contribute, the significant impacts on the directional freeway segments identified above would be considered significant and unavoidable.

